RATAN TATA
LIBRARY

~~DELHI UNIVERSITY LIBRARY~~

Cl. No. L:5u2:N4 H0

Ac. No. 1154 Date of release for loan

This book should be returned on or before the date last stamped below. An overdue charge of 10 Paise will be collected for each day the book is kept overtime.

UNIVERSITY OF DELHI.

27 OCT			

CONTENTS

I

HEALTH PROBLEMS OF INDIA

by

K. C. K. E. RAJA

II

THE PROBLEMS OF NUTRITION IN INDIA & ASIA

by

V. N. PATWARDHAN

III

PHYSICAL EDUCATION & RECREATION

by

P. M. JOSEPH

Price Rs. 1/12

HEALTH
NUTRITION AND
PHYSICAL EDUCATION
PROBLEMS
OF
INDIA

INDIAN COUNCIL OF WORLD AFFAIRS
NEW DELHI

1154

HEALTH PROBLEMS OF INDIA

SECTION I

INTRODUCTION

The purpose of the Inter-Asian Relations Conference is the establishment of collaboration between the countries of this continent in all fields of life—social, cultural, intellectual and other—in which their mutual interests can be advanced through a purposeful effort to understand and harmonise, as far as possible, the national aspirations of each. In this way can the numerous races inhabiting Asia, with their varying languages, customs and stages of social progress, hope to create in course of time a growing unity of purpose in the ordered development of community life based on the principles of understanding and sympathy, of mutual assistance and, above all, of tolerance of real differences in outlook, wherever they exist. It is considered that common endeavour in the field of health can play an important part towards the attainment of this objective through the valuable opportunities it provides for co-operation in matters which are often of vital importance to all the nations. Epidemics respect no frontiers between countries and frequently require joint action between their governments if the spread of such diseases is to be effectively checked. Further, a modern health programme embraces within its scope much more than the control of human sickness. It places before itself the achievement of a growing measure of positive health for the individual whereby his working capacity and ability to enjoy life are progressively increased. Towards this end improved nutrition, rectification of faulty modes of life through health education, physical culture and the wise use of leisure must all be promoted on as large a scale as possible. These open up an expanding vista of social activity in which the different Asian countries may find a fruitful field for cooperative effort to the benefit of all. We in India hope to play our part, in the coming years, in the campaign for a richer and fuller life for the peoples of Asia. In the more restricted field of health we feel that our geographical position will enable us to help effectively in co-ordinating measures intended to control the spread of diseases from one country to another. On the one hand, our long coast line and the close association we have with Burma, Ceylon, Malaya, Indonesia, Arabia and the countries on the Persian Gulf and, on the other, our proximity to the great land masses represented by Soviet Asia and China as well as Afghanistan place us in a position to assist in the development and maintenance of quarantine measures, particularly when a large scale development of air services breaks the barriers to the free flow of men and material which the Himalayas and the Central Asian deserts had established in the past.

The health problems of India are substantially the same as those of most countries represented at this Conference. For them a common feature is a high incidence of preventable sickness and mortality owing to the prevalence of many diseases which, because of their effective control or elimination in the countries situated in the temperate regions of the Globe, have come to be recognised as " Tropical diseases ". In these Asian countries other factors which contribute to the low level of the public health are the extreme inadequacy of existing health services, curative and preventive, unhygienic environmental conditions, a wide prevalence of malnutrition and undernutrition in the community, lack of education and the existence of certain social practices which have an adverse effect on the physical and mental health of the people. These factors are mainly due to poverty and to an ineffective organisation of community life in the absence of a determined drive, in the past, to apply the resources of science and adequate co-operative effort to create such conditions as are essential to healthful living. Another common feature between India and these other countries is that all are essentially agricultural in their economy and predominantly rural in the distribution of their population. The methods to be adopted for the solution of their health problems may therefore have to be developed on lines somewhat different from those found useful in the highly urbanised and industrialised countries of the West. In the development of their health programmes it would therefore be of advantage for all Asian countries to promote mutual consultation and to develop collaboration on as wide a basis as possible.

In this memorandum all that has been attempted is to make a brief review of existing health conditions in India and to put forward certain suggestions which, it is hoped, will prove to be of value for the development of efficient health services in the country. A detailed survey of the health problems of this vast subcontinent and the formulation of a comprehensive plan of health development were completed only recently by a special committee appointed by the Government of India, the Health Survey & Development Committee under the Chairmanship of Sir Joseph Bhore, and all those who are interested in a serious study of the subject should turn to the Report of this Committee.

The views expressed in this memorandum are essentially those of the writer and are not necessarily the views of the Central Health Department in which he is serving.

SECTION II

THE PRESENT STATE OF THE PUBLIC HEALTH IN INDIA

Sickness and Mortality

In attempting to present a picture of existing health conditions in India and to compare them with those of other countries the mortality rates and other figures which are incorporated in the memorandum relate to British India and not to the country as a whole. Many of the Indian States do not possess even the skeleton health organisations which exist in the provinces of British India and the vital statistics recorded in these States are therefore likely to be even more defective, both from the point of view of completeness of registration and of accuracy, than those recorded in the provinces where too, as will be shown later, these statistics are far from satisfactory. In the circumstances it is not possible to present morbidity and mortality statistics on an all-India basis. Nevertheless it is felt that, as British Indian provinces and the States lie interspersed throughout the country, the figures for the former will help to indicate, in a broad way, the general health conditions prevailing throughout the land.

The death rates for the population as a whole and for infants in British India and in certain other countries are shown below :—

	General death rate per 1,000 of the population	Infantile death rate per 1,000 live births
1. British India	24.1 (1944)	169 (1944)
2. England and Wales	11.9 (1944)	46 (1944)
3. Australia	11.2 (1943)	36 (1943)
4. The United States	10.6 (1944)	40 (1944)
5. New Zealand	9.9 (1944)	30 (1944)

It is obvious that India will have to travel a long way on the road to health before she reaches the milestones already passed by countries such as Australia and New Zealand. The progress achieved in these two countries in the reduction of infant mortality is remarkable. The new born child finds itself, on liberation from the protective environment of the mother's womb, in an alien world to which it has to adjust itself fairly rapidly if it is to survive. The extent to which this environment has been made safe for the infant through purposeful effort to ward off harmful influences and to promote the gradual development of its intrinsic powers of resistance to such influences constitutes a satisfactory standard by which to measure the efficiency of the community's health organisation as well as the level to which civic consciousness has risen through the emphasis laid on the preservation of the nation's most precious asset, namely, the human material which will determine its future composition and, in a large measure, mould its destiny. India's infantile death rate of 169 per 1,000 live births as against the corresponding figure of 36 for Australia and 30 for New Zealand indicates, therefore, how far behind them she is in such matters.

Nearly half the deaths in India take place every year among children under 10 years and about one-half of the deaths among such children occur within the first year of life. In England, on the other hand, the corresponding percentages are 10 and 6 respectively.

Maternity should, under normal conditions, be a physiological function for healthy women of the reproductive age. A conservative estimate places the number of deaths associated with causes due to childbearing at 2,00,000 annually in this country or about 20 per 1,000 confinements. It is also estimated that the number of women suffering from varying degrees of discomfort and disability resulting from childbearing is about four millions. In some of the progressive countries the maternal mortality rate has been reduced to a seventh or eighth of the rate for India.

The high rates of mortality in the different sections of the community are, as may be expected, accompanied by a wide prevalence of disease. For instance, the Bhore Committee's report points out that at least one hundred million individuals, or one in four of the people of the country, suffer from malaria every year. The number of tuberculosis patients, who are definitely ill and can transmit the infection to those who come in contact with them, is said to be in the neighbourhood of 2.5 millions while the annual mortality from this disease is estimated at half a million. There are about a million patients of leprosy, of whom about a quarter are infectious and probably help in the propagation of the disease. The extent of prevalence of venereal diseases cannot be stated. An estimate made by a former Director General of the Indian Medical Service (Sir John Megaw) about fifteen years ago places the combined rate of incidence of gonorrhoea and syphilis at about 37 per 1,000 of the population. It seems almost certain that conditions arising out of the war must have contributed towards an enhancement of the rate, the extent of which cannot be estimated. Both these diseases are responsible for much blindness while syphilis accounts for a large amount of mental deficiency as well as for a considerable proportion of the abortions and premature births that take place. Gonorrhoea produces a number of conditions affecting the genito-urinary organs in men and women as well as joint trouble and in women it may cause sterility. The importance of these two diseases from the point of view of the public health is therefore evident.

India is regarded by other countries as an endemic centre for cholera, smallpox and plague and various quarantine measures are in operation against the movement of goods and passengers from India in order to prevent the entry of such infections into those countries. From the point of view of India's mortality these diseases do not, however, make an impressive contribution, as they are collectively responsible for perhaps less than 5 per cent of the total number of annual deaths. Nevertheless, the spectacular manner in which epidemics of these diseases rise and spread through wide tracts of territory invests them with considerable importance and a large part of the effort put forth by provincial public health staffs is directed towards their control.

The average annual deaths in British India during 1932-41 are shown below classified according to causes. They and other figures which are given in this memorandum have been quoted mostly from the Bhore Committee's report :—

Average Annual Deaths in British India during 1932-41

Cholera	Smallpox	Plague	Fevers	Dysentery and diarrhoea	Respiratory diseases	Other causes	Total
145,916 (2.3)	70,294 (1.1)	31,796 (to.5)	3,667,797 (58.0)	264,659 (4.2)	478,071 (7.6)	1,662,593 (26.3)	6,321,127 (100.0)

The figures in brackets give the deaths under each head as percentages of the total numbers of deaths.

A number of diseases is grouped under such heads as " fevers ", " respiratory diseases " and " other causes ", the reason being that the machinery for reporting the cause of death is of a primitive type, particularly in the rural areas where about 85-90 per cent of the people of this country live. The village watchman, who is generally illiterate and is overburdened with a variety of other duties, is the agent for reporting these events. Medical certification of death is in force only in a few large cities, perhaps a dozen or so in the whole of British India, and even in these cities there is room for an improvement of the current practice if a reasonable measure of accuracy of the cause of death is to be attained. In the circumstances statistics for deaths are being published only in such broad groups as are shown above.

Appreciable proportions of the deaths under " fevers " are, the health authorities state, due to malaria, tuberculosis and the enteric group of fevers. The " respiratory diseases " group also contains a definite proportion of cases of pulmonary tuberculosis besides other conditions such as pneumonia. While therefore these groups of causes do not lend themselves to a reasonably correct appreciation of the contribution that individual diseases make to the total mortality in the community, it is clear that much of the sickness responsible for the present low state of the public health is preventible. Indeed, the Bhore Committee has estimated that the execution of the health plan it has drawn up should help to produce, on a conservative estimate, a saving of at least three million lives annually.

Nutrition

Among the factors contributory to the prevailing state of subnormal health in the community special reference should be made to the nutrition of the people. An insufficient and ill-balanced diet is typical of the food consumed by many millions in India. In order to indicate how far existing levels of production of essential articles of food fall short of the requirements of the country the words of the Bhore Committee may be quoted. " In India about 80 to 90 per cent of the food consumed by the people consists of cereals. Such figures as are available suggest that the average annual production of cereals in the country in 1939-43 fell short of the necessary requirements of the population by about 22 per cent. In regard to other articles of diet such as vegetables, fruits, milk, meat, fish and eggs the quantities now produced will have to be increased several times before adequate amounts become available for the proper nutrition of the people."

Health Services

As against the prevailing background of sickness and mortality existing provision for medical relief to the people is definitely low in comparison with the more progressive countries of the West, as may be seen from the numbers given below of doctors and of hospital beds in relation to the popualtion of the United States of America, England & Wales and British India. The death rate in each country during 1944 is also given for comparison :—

	Number of doctors per 10,000 of the population	Number of beds per 1,000 of the population	Death rate per 1,000 of the population
U. S. A.	13.0	10.48	10.6
England and Wales	10.0	7.14	11.9
British India	1.6	0 24	24.1

About 70-75 per cent of the doctors available in India are practising in urban areas while the rural population is about eight or nine times larger than that of the urban. Some idea of the inadequacy of medical institutions in the rural areas may be gained from the fact that, in 1942, the average population served by a medical institution in the United Provinces was about 105,600 while the average number of villages for a rural population of this size is 224. The extent to which the personnel employed on preventive health duties are inadequate has been clearly stated by the Bhore Committee. " The total number of sanitary or health inspectors employed in British India is about 3,000 while it has been estimated that the number required will be in the neighbourhood of 12,000. The existing number of midwives is probably 5,000 while, for adequate service to the people, 100,000 are considered necessary. The total number of health visitors in the country is about 700 or 750 while, for the supervision of the work of 100,000 midwives, about 20,000 health visitors will be required. The number of women doctors with special training in maternity and child welfare work is about 70 or 80 and, of these, only a dozen are women graduates in medicine with adequate special training in maternity and child welfare work."

As is to be expected from this brief description of the state of the public health in India the expenditure incurred by health administrations on the provision of medical relief and preventive care to the people is extremely low. For instance, the Bhore Committee has pointed out that, in 1944-45, the combined expenditure on the medical and public health departments in individual provinces varied from 2.8 annas to 10.9 annas per head of the population while, even after making allowance for India's lower national income, the amount spent in this country should have been Rs. 3-3-0 per capita if our expenditure on health measures were to bear the same relation to national income as the corresponding expenditure in Great Britain in 1934-35 bore to her own national income. On a similar comparison with expenditure on health in the United States of America in 1938, India should spend Rs. 2-5-0. Of the total expenditure in 1944-45 in individual provinces on all branches of administration the percentage devoted to health varied from 2.5 to 7.3 in the different provinces. It is clear that, in the past, the supreme importance of promoting the health and welfare of the community had not been adequately realised and that health administration had, in consequence, received but scanty attention from Governments.

In the foregoing paragraphs the picture of health conditions in India has been drawn in broad outline and a brief reference has alone been made to some of the associated factors, an abnormal incidence of disease, the wide prevalence of malnutrition and undernutrition among the people and the total inadequacy of the existing health services. Nevertheless, it is hoped that even this brief survey has helped to emphasise the need for an immediate programme of health development designed to conserve life, to lessen suffering and to promote the working capacity and sense of wellbeing of the people. It is not possible to convert into money the harm caused to the community through preventible sickness and mortality. The Bhore Committee has quoted an estimate of an annual loss of about Rs. 147 crores to Rs. 187 crores per year as a conservative figure for malaria alone. When other diseases are also taken into consideration, the estimate is bound to increase to several thousands of crores of rupees. But such calculations do not and cannot take into consideration the large amount of suffering for which disease and death are responsible or the disruptive influence which they exert on the peace and happiness of the home.

SECTION III

THE ORGANISATION OF A NATIONAL HEALTH PROGRAMME

Bhore Committee's Plan

The foregoing brief discussion regarding existing health conditions indicates that, in the development of a national health programme, certain matters require special consideration. These include, among others, (1) an expansion of health services throughout the country and particularly in the rural areas, (2) special provision for the health and welfare of children and mothers, (3) an all-round improvement of environmental hygiene so as to produce healthy living conditions for the community and (4) a substantial raising of the standard of nutrition of the people. The plans put forward by the Bhore Committee give adequate recognition to all these matters. Its scheme for developing health services is more comprehensive than any which has so far been drawn up and, as a Conference of the Ministers of Health of the Central and Provincial Governments has accepted it, in October 1946, as sound in principle and administratively practicable, it is to be anticipated that it will, in due course, be implemented throughout the country with such modifications as local circumstances and the limitations of finance may necessitate. This plan may therefore be briefly considered.

The Committee has taken the administrative district as the basis for the development of health services and has described the district health organisation in the following words :—

> " The district health organisation will have as its smallest unit of administration the primary unit, which will normally serve an area with a population of about 10,000 to 20,000. A number of such primary units (about 15 to 25) will together constitute a secondary unit and a varying number of the latter (about 3 to 5) will form the district health unit, the designation by which the district health organisation will be known. At each of the headquarters of the district, secondary and primary units will be established a Health Centre as a focal point from which the different types of health activity will radiate

> into the territory covered by each type of unit. The District Health Centre will possess general and special hospitals with a total bed strength of about 2,500 and all the consultant and laboratory services required for the diagnosis and treatment of disease on up-to-date lines. The administrative staff of the district health organisation will be located here and will exercise supervision over the district as a whole. Similarly, the Secondary Health Centre will be provided with hospital accommodation of about 650 beds and with equipment and other facilities on a generous scale, although not up to the standard of the District Health Centre. The administrative staff of the secondary unit will be attached to the Secondary Health Centre and will exercise supervision and control over the primary units included in it. The Primary Health Centre will have a 75-bed hospital and health administration over the area included in the primary unit will radiate from this Centre."

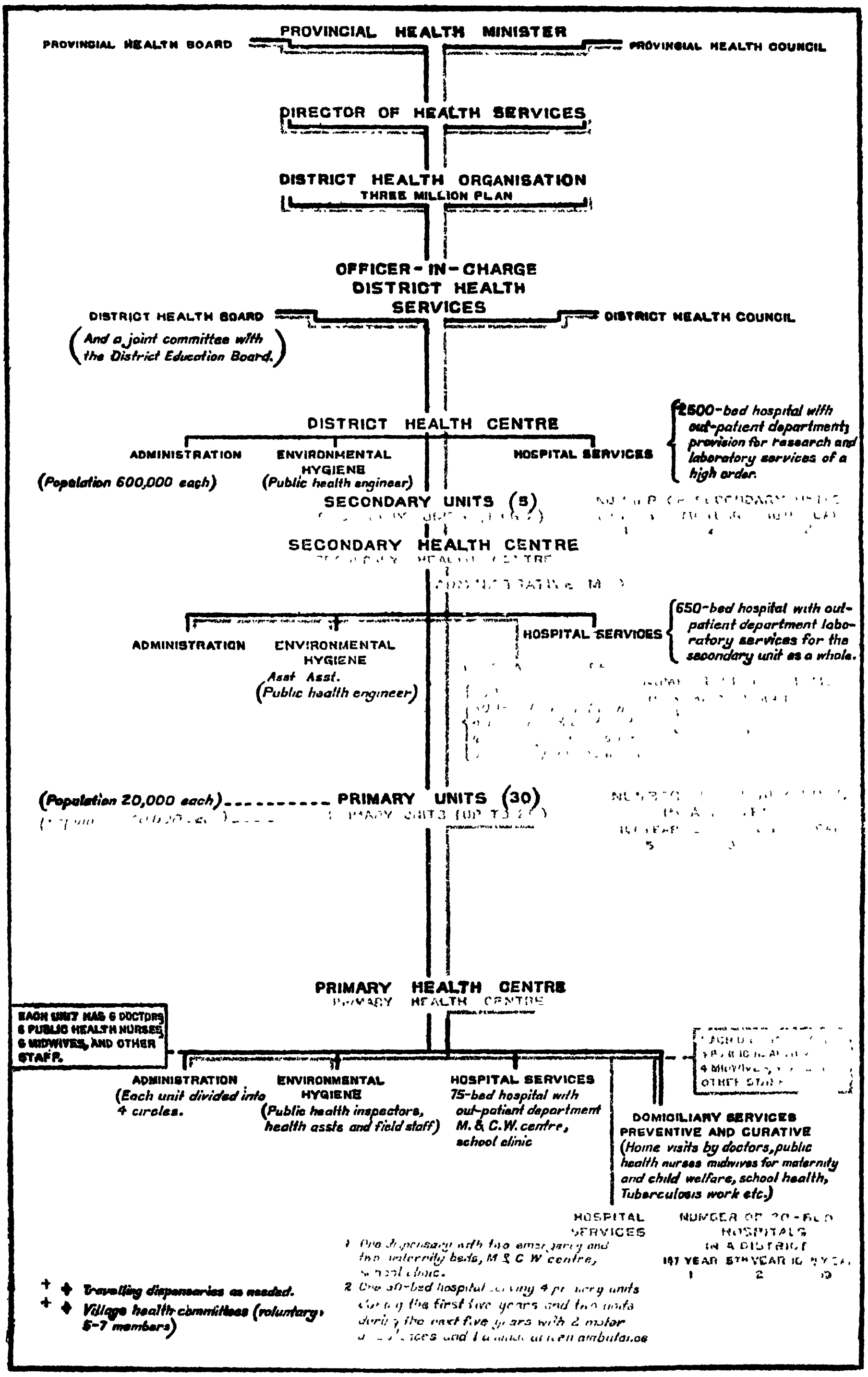
This represents the ultimate stage of the district health organisation when the Committee's long-term programme, probably requiring 30 to 40 years, is completed. At the start inadequacy of trained staff and of funds will necessitate the development of the plan on more modest lines and the Committee has put forward a short-term programme which has been worked out in some detail for two successive stages of five years. A primary unit under the short-term programme will serve a population of 40,000 as against 10,000-20,000 when the long-term scheme is completed. The staff, equipment and number and variety of medical institutions will all be on a limited scale during the early years but the health plan has an organic unity which ensures continuity of development, its successive stages of expansion helping to promote the range and effectiveness of the services made available to the people. In addition to general health services for the community as a whole, detailed suggestions have been put forward for organising adequate measures for the protection of special groups such as mothers and children, the schoolgoing population and industrial workers as well as for controlling the incidence and spread of certain diseases which are widely prevalent in the country, e.g., malaria, tuberculosis, leprosy, venereal diseases, smallpox, cholera and plague.

For the successful working of the health programme one essential condition is that provision should be made for enabling (a) representatives of the people to participate, at the different levels of health administration, in the shaping of health policy and (b) representatives of the medical, nursing and other professions to tender advice to the health authorities in matters relating to the organisation and control of the health services. For the former the Bhore Committee has suggested the creation of Central, Provincial and District Health Boards. The members of the first will be the Ministers of Health of the Central and Provincial Governments, of the second the Provincial Minister of Health and representatives of local health authorities and of the District Health Board representatives of the people of the district. Similarly, Health Councils have also been proposed for the Centre, Province and District, which will be responsible for advising the health authorities concerned on all matters relating to health services.

The diagram facing this page presents the long and short term programmes of the Committee and attempts to show how the provision made during the first 10 years will expand considerably by the time the plan is completed.

BHORE COMMITTEE'S PROVINCIAL HEALTH PLAN

LONG TERM PROGRAMME IN BLACK
SHORT TERM PROGRAMME IN RED


PROVINCIAL HEALTH MINISTER
PROVINCIAL HEALTH BOARD
PROVINCIAL HEALTH COUNCIL
DIRECTOR OF HEALTH SERVICES
DISTRICT HEALTH ORGANISATION
THREE MILLION PLAN
OFFICER-IN-CHARGE DISTRICT HEALTH SERVICES
DISTRICT HEALTH BOARD
(And a joint committee with the District Education Board.)
DISTRICT HEALTH COUNCIL
DISTRICT HEALTH CENTRE
ADMINISTRATION
(Population 600,000 each)
ENVIRONMENTAL HYGIENE
(Public health engineer)
HOSPITAL SERVICES
2500-bed hospital with out-patient department; provision for research and laboratory services of a high order.
SECONDARY UNITS (5)
SECONDARY HEALTH CENTRE
ADMINISTRATION
ENVIRONMENTAL HYGIENE
Asst Asst. (Public health engineer)
HOSPITAL SERVICES
650-bed hospital with out-patient department laboratory services for the secondary unit as a whole.
(Population 20,000 each)
PRIMARY UNITS (30)
PRIMARY HEALTH CENTRE
EACH UNIT HAS 6 DOCTORS, 6 PUBLIC HEALTH NURSES, 6 MIDWIVES, AND OTHER STAFF.
ADMINISTRATION
(Each unit divided into 4 circles.
ENVIRONMENTAL HYGIENE
(Public health inspectors, health assts and field staff)
HOSPITAL SERVICES
75-bed hospital with out-patient department M. & C.W. centre, school clinic
DOMICILIARY SERVICES PREVENTIVE AND CURATIVE
(Home visits by doctors, public health nurses midwives for maternity and child welfare, school health, Tuberculosis work etc.)
HOSPITAL SERVICES
1 One dispensary with two emergency and two maternity beds, M & C W centre, school clinic.
2 One 30-bed hospital serving 4 primary units during the first five years and two units during the next five years with 2 motor ambulances and 1 bullock or horse ambulances
NUMBER OF 30-BED HOSPITALS IN A DISTRICT
1st YEAR 5th YEAR 10 YEAR
1 2 10
Travelling dispensaries as needed.
Village health committees (voluntary, 5-7 members)

The Bhore Committee's health scheme, when implemented, will bring health services close to the inhabitants of both rural and urban areas and will provide those facilities for the diagnosis and treatment of disease and for preventive care which modern medicine has made available to mankind. An emphasis on the combination of preventive and curative work in such a manner as to enable each to supplement the other and on an integration of health work in the homes of the people with the more specialised services, which will be provided at a number of medical institutions of varying types and sizes distributed all over the country, constitutes a special feature of the scheme. It has been stressed that the aim should be to ensure that the health protection given to the individual should be in relation to his needs and not to his ability to pay for it. It has also been stressed that a radical improvement of the environment in which the community lives will be necessary before a measurable advance in the standard of the public health can be achieved. To quote the words of the Committee " In the campaign for improved health drugs, vaccines and sera can in no way replace such essentials as a hygienic home, good food, fresh air and a safe water supply." Further, it has been pointed out that the national health programme should be considered as part of the wider problem of social security and that the task of building the nation's health would be fulfilled adequately only by a simultaneous advance on many fronts to improve the standard of life of the people. The Committee has therefore stressed the need for developing its health plan and the plans of other postwar reconstruction committees simultaneously in selected areas. The national effort, which will be mobilised in the coming years to improve the living standards of the community and to enrich its social and cultural life, will influence the public health as profoundly as the health services which will be established in the country.

The Committee stressed the importance of a field survey designed to study existing conditions as an essential part of its health programme. Obviously, a clear definition of all the major factors relating to the health and welfare of the community is a prerequisite to the initiation of a sound scheme of health development. Such a survey should be undertaken on a comprehensive basis and it should include within its scope information regarding the nature and extent of prevalence of disease and mortality, existing provision, governmental and other, for medical relief and preventive care as well as various socio-economic factors, such as housing, nutrition, occupation and income, which have all a bearing on the health of the individual and of the community. In view of the impossibility of extending, for reasons of cost and personnel, such detailed studies over the whole area to be covered by its health organisation, the Committee has suggested that these surveys should be undertaken in a number of representative areas in each province. The surveys will also provide a base line from which to measure, from time to time, the results achieved by the health programme.

Certain Other Matters

The development of a national health service on the comprehensive lines indicated above involves the consideration of many questions. It will obviously be impossible to discuss, in this short memorandum, the wide range of subjects which can appropriately be considered in this connection. A certain number of these has been included here, as it is believed that they are important and should therefore receive attention from those who are responsible for formulating India's health policy as well as from the people themselves, the promotion of whose welfare is the ultimate purpose of the execution of such policy. It may again be pointed out that the opinions expressed here are the personal views of the writer and not necessarily those of the Government under which he is serving.

(1) *Rural health.* The problem has at least two aspects, (*a*) an extension of health services into the rural areas on an adequate scale as quickly as possible and (*b*) a reorganisation of community life in order to improve the standard of living of the people and to promote an enrichment of their life through the development of social and cultural activities.

The rural population has suffered, in the past, from inadequacy of health services to an even greater extent than the people living in cities and towns. One of the difficulties in connection with an extension of such services into the rural areas has been the unwillingness of doctors and other health personnel to settle in villages. The Bhore Committee's report points out that, in Bengal, the doctor to population ratio in urban centres is about three and a half times that in rural areas while the corresponding ratio in Sind is as high as 49:1. The report adds that at least 70 to 75 per cent of the total number of the doctors available in the country must be practising in urban areas. As the rural population is about 8 or 9 times that of the urban areas, the medical care which the inhabitants of villages receive from those practising modern scientific medicine is very much less than that which the urban population obtains.

The causes for the unwillingness of doctors and others to work in rural areas include the unsatisfactory housing conditions in villages and the inadequacy of facilities for the education of children and for social life. The recommendation made by the Bhore Committee for the provision of housing accommodation to all members of the rural health staff is for the purpose of removing one of the major obstacles to the free flow of such personnel to the rural areas. If, as has been suggested by that Committee, a simultaneous development of the health and other programmes of reconstruction is undertaken in the same areas, workers in many fields such as agriculture, animal husbandry, education, health and cooperation will be brought together at rural centres and the provision of social amenities and of educational facilities will be promoted. The development of the countryside through an expansion of agricultural and industrial activities on a large scale will also assist to bring to the villages medical, educational, agricultural and other services. Large scale farming either under the auspices of the State or of cooperative societies will, it is anticipated, be a pronounced feature of the country's agricultural policy and the provision of health and other services will naturally form a part of the programme of such developments. A similar expansion of these services will also probably result if, as suggested by the Bhore Committee, the dispersal of new industries in rural areas is taken up with earnestness. The economic life and general welfare of the rural areas can, in this way, be improved considerably while the evils resulting from the insanitary and crowded slum conditions, which are generally associated with urban industrial development, can be avoided.

It is for consideration whether planned rural development will not proceed on more satisfactory lines if the existing large number of villages with small aggregations of population can be grouped into larger individual units. At the 1941 census there were, in India as a whole, 655,892 villages with a total population of 339.3 millions. The population of nearly 70 per cent of these villages was under 500. With such a small number of inhabitants the development of social services and amenities and of a planned economy in individual villages is by no means easy. It is recognised that the people, particularly those living in rural areas, are wedded to their soil and that their transplantation into new surroundings would create opposition as well as numerous problems for solution. It is not suggested that migration into distant areas should take place. What is desirable is that the inhabitants of a number of small villages, which lie scattered in a particular area, should be brought together into a well-knit community and that its life should be promoted on lines intended to provide for it the standards which are essential for health and cultural development. It is anticipated that such a re-distribution of the village population will be a logical accompaniment of large scale agricultural and industrial developments in rural India.

It may not be out of place to describe here the way in which the development of rural health services has been promoted in Russia*. In that country about 75 per cent of the people live in rural areas. This large proportion of rural population and the wide expanse of territory make Russia's problem of rural medical aid similar to that which faces India. In Russia :—

(1) Country doctors are paid about 10 to 20 per cent higher salaries than those in cities and towns. Doctors who are posted to the Arctic region or the mountain villages of Central Asia get still higher salaries.

(2) A period of training in a rural medical centre is part of every medical student's course. This rule brings every year thousands of doctors to the rural districts.

(3) Rural medical centres are supplied with X-ray, microscopes and other equipment for the practice of scientific medicine and the young doctor sent to the rural areas does not therefore suffer from the frustration which a young man feels when, after his training in his college hospitals, he is sent to an ill-equipped institution in the country.

(4) The amenities in Russian villages have grown considerably. A typical Russian village today has a club, a library, a stadium, a radio, weekly lectures, theatrical performances, band and so on, so that life in the village is not so dull as it used to be. The Russian village is often a collective farm.

(5) Lastly, the great majority of the doctors in Russia come from the peasant stock and it is said that, after training, they are willing to go back to the rural areas.

The long-continued prevalence of adverse socio-economic conditions in India and the high incidence of sickness among the rural population have contributed to the development of a spirit of passive acceptance of existing evils as inevitable. This spirit of apathy must be overcome and the active cooperation of the people should be secured in the formulation and development of the local health programme, if lasting results are to be achieved from the campaign for improved health in the rural areas. It is considered that measures designed towards this end should aim at bringing self-government right down to the level of individual villages, with reasonable safeguards to secure efficiency of administration, as well as at promoting the cooperative movement so as to integrate community life into a concerted effort to improve the standard of living.

---

* These notes are based on the information given to the Bhore Committee by Prof. Sigerist who visited India on the invitation of the Government of India, to assist the Committee.

The Bhore Committee has suggested the establishment of a health committee in every village consisting of five to seven members according to the size of the village and the conferment of specific duties on each member of the committee in order to secure his active support and, through him, of other villagers. Legislation, which has recently been proposed in the United Provinces, goes much further and deserves consideration here. Under the " United Provinces Gaon Hukumat Bill, 1946 ", for every village with its population under 2,000 the Provincial Government is required to establish a *Gaon Sabha* consisting of all adults ordinarily resident in the village. This *Sabha* elects an executive body, the *Gaon Panchayat*, which will be responsible for local taxation and for self-government covering a wide range of subjects, including health, education, agriculture, animal husbandry, development of cooperation and the promotion of cultural activities such as the organisation of facilities for physical education and recreation, establishment of village libraries and reading rooms and provision of radio sets and gramophones. An important provision in the Bill is the power granted to a *Gaon Panchayat* to direct that " all males between the ages of 18 and 25 ordinarily residing in its area shall render manual labour to it for a fixed number of days not exceeding eight days in any year or four days at a stretch." This provision will help to inculcate in the minds of the people the dignity of labour as well as to promote the mobilisation of local effort, on a planned basis, for the improvement of rural sanitation. The Bill also provides for the appointment of Joint Committees by two or more *Gaon Panchayats* for the purpose of carrying on any business in which they are jointly interested, e.g., the establishment and future maintenance of institutions for serving all of them. Provision is also included for enabling the Provincial Government to guide and regulate the functioning of these *Village Panchayats.*

The development of multi-functional cooperative societies, for the organisation of which attempts are already noticeable in certain provinces, should pave the way for the canalisation of community effort in the socio-economic field into desirable channels and for the promotion of a spirit of cooperation and self-help, which is the best antidote to the prevailing attitude of apathy and sense of frustration which characterise the people of the villages.

Even from the point of view of developing local self-government in rural areas on the lines proposed in the United Provinces and of integrating the life of the people into a determined effort to achieve better living conditions the amalgamation of small villages into a larger unit would seem to be eminently desirable.

(2) *The Indigenous systems of medicine.* These systems have a strong hold on the people of the country. Collectively they cater to the needs of probably 90 per cent of the inhabitants and it has therefore to be recognised that, under existing conditions, they play an important role in providing medical aid to the vast majority of India's population. This fact coupled with the interest which Governments and large sections of the public have begun to show, in recent years, in the training of practitioners of these systems and the increasing demand from responsible quarters for the utilisation of the services of their practitioners in the State health organisation have made it imperative, in the interests of future health developments in India, to make a dispassionate attempt to determine what the country's policy should be in regard to these systems, taking into consideration all the facts which are relevant to such a decision. The problem should be considered, it is believed, from the standpoint of the relative contributions that these systems and modern scientific medicine can make (*a*) towards the provision of effective medical aid and preventive care to the people and (*b*) towards the satisfactory fulfilment of India's international health obligations. Before these questions are discussed, however, it may not be out of place to enquire why these systems of medicine continue to retain such a strong hold on the people and why modern medicine, in spite of State support, has failed to establish itself in the country.

Both the Ayurvedic and the Unani systems embody a philosophical outlook which appeals to the educated Indian public. " Hindu philosophy as it is crystallised in the system of the Tantras, looks at the human body and at the universe as a manifestation of divine substance and energy, a concept the elements of which can be traced back to Vedic traditions. The three elements wind, bile, and phlegm are symbols of the aerial, fiery, and liquid forces of life-energy. Throughout its history Ayurvedic medicine was an attempt to interpret the phenomena of life and death, of health and disease, philosophically. Unani medicine, on the other hand, through the Persian and Arabic tradition goes back to Galenic, Hippocratic and Pythagorean views and having passed through the filter of Avicenna, it acquired many elements of Aristotelian philosophy."*

Secondly, these systems of medicine make a strong appeal to national sentiment. In his presidential address to the Joint Conference of the Academy of Indian Medicine and the L. I. M. (Licentiate in Indian Medicine) Association, Madras, on 22nd June 1946, Capt. G. Srinivasa Murti, who was till recently the Principal of the School of Indian Medicine maintained by the Government of Madras, says, " The Science and Art of Indian Medicine is part and parcel of our invaluable cultural heritage which should be zealously preserved, fostered and promoted at least in India and for the greater service to the cause of Science, suffering humanity and the generations that are to come after us. If it is ignored in India itself, where else could we expect it to be cherished as the Science and Art of such proven practical and cultural value deserves to be cherished."

Thirdly, the indigenous systems of medicine contain some valuable drugs and their practitioners have, in certain cases, been able to give striking relief to patients and effect cures so that, in the popular mind, these instances reinforce the natural inclination to support these systems.

---

* "The need for an Institute of the History of Medicine in India" by Henry E. Sigerist, Bulletin of the History of Medicine, 1939, 7, pp. 627-662.

A fourth reason, which is perhaps the most important, for the continued acceptance of the indigenous systems by the majority of the people, in spite of the fact that the State health services have in the past been based on scientific medicine, is that the latter has had no chance to prove its value. As has already been pointed out, nearly 75 per cent of the practitioners of modern medicine live and work in urban centres while 85 to 90 per cent of the people live in rural areas. Therefore the sick in the villages have had no choice and have generally had to turn to the nearest *vaidya* or *hakim* for medical aid. Moreover, as has been pointed out by the Bhore Committee, the efficiency of the limited number of dispensaries which exist in the rural areas has been, broadly speaking, very low. These dispensaries are ill-equipped and insufficiently staffed and the Committee noted that, in many cases, the number of patients to be cared for by the doctor in attendance was so high that the average time devoted to a patient was about three-quarters to one minute. Further, lack of opportunities for periodical refresher courses for the doctor has tended to lower his technical efficiency. In the circumstances it is considered that, qualitatively and quantitatively, modern scientific medicine has not had an opportunity to prove its worth, particularly in the rural areas.

As has already been pointed out, the country's policy in respect of these systems and of modern scientific medicine should be determined mainly by two considerations, namely, the relative contributions that they and scientific medicine can make (1) towards the provision of effective medical aid and preventive care to the people and (2) towards the satisfactory fulfilment of India's international health obligations. In regard to the first scientific medicine is definitely superior to the others. "The new science that developed from the 16th century onwards created a new foundation of medicine, a new anatomy, physiology and pathology on the basis of which new systems of public health and of clinical medicine could be developed with infinitely more effective methods of prevention and cure. The theory of medicine, the views we have of the causes and mechanisms of disease are not a luxury but determine our actions. The concepts of wind, bile and phlegm or of blood, phlegm, yellow bile and black bile represented useful working hypotheses at their time, but the new science has demonstrated that the actions attributed to them are the result of speculation and do not correspond to a reality, while it is possible to explain the phenomena of health and disease with concepts of biology, physics and chemistry in an infinitely more satisfactory way, one that permits testing in experiments and has led to brilliant practical results."* The one feature which differentiates modern medicine from the others is that it is based firmly on the biological and physical sciences. The result is twofold. Scientific medicine is helped to achieve increasingly a truer interpretation of health and disease, which is the basis of all progress in medical thought and practice, by the advances which these sciences are making from day to day. Further, the range and effectiveness of the measures which modern medicine can offer for the preservation of health and for the diagnosis, treatment and prevention of disease have also tended to grow. In both these respects the indigenous systems, if they are to maintain their identity by the retention of their basic principles, can hardly make any progress because these principles run counter, in many ways, to the knowledge which the advance of science has made available to us.

---

*"The need for an Institute of the History of Medicine in India" by Henry E. Sigerist, Bulletin of the History of Medicine, 1939, 7, pages 626-662.

Certain other matters may also be considered. Today health administration, particularly preventive work, is based on a system of legal provisions which require the medical profession to carry out certain duties. For instance, the reporting of a number of infectious diseases, which are declared notifiable, is a duty incumbent on all medical men who, during the exercise of their profession, come across such cases. Clearly, in order that this function may be discharged satisfactorily, all the doctors should use the same nomenclature in respect of diseases. This obviously becomes impossible if the State recognises and maintains a variety of systems of medicine for the community. Further, preventive work on the lines approved by modern medical practice, which includes measures to raise the resistance of the individual against infection through appropriate vaccination as well as steps to block the channels for the spread of infection through the disinfection of infective material and a campaign against the vectors transmitting the diseases concerned, has no place in the indigenous systems of medicine.

In the international sphere India has certain obligations to other countries which she has accepted as a member of the United Nations Organisation. These include participation in measures designed to prevent the spread of infectious diseases between countries and cooperation in the promotion of activities intended to advance knowledge and to facilitate its application for the solution of health problems. Unless India's health organisation is based on modern scientific medicine it will clearly be impossible for her to discharge satisfactorily these functions.

The superiority of scientific medicine over the indigenous systems appears therefore to be beyond controversy both in respect of her own need for adequate health protection and in respect of the responsibilities she has undertaken as a member of the Health Organisation of the United Nations.

Nevertheless, the fact remains that the medical needs of about 90 per cent of the people of this country are at present catered for by the indigenous systems of medicine and that the latter will probably continue to do so for many more years to come. It is therefore argued that it is in the best interests of the country to regulate the training of the practitioners of these systems and to control their medical practice and that State action directed towards these ends is essential. Indeed, steps in this direction have already been in progress in recent years in certain provinces and, in view of the decisions reached at a recent Conference of Health Ministers, the encouragement of these systems and the utilisation of the services of their exponents in the State health services to an even greater extent than in the past seem almost certain. As regards their training the tendency which is generally prevalent is to incorporate in the curriculum for indigenous medicine, modern anatomy, physiology and pathology and to superimpose on this foundation the theory and practice of the Ayurvedic, Unani or other form of indigenous medicine, as the case may be. It is not understood how, on such a foundation, the varying concepts regarding disease and its treatment, which each of these systems presumably stands for, can be built up into an organised structure of medical practice which preserves, at the same time, its adherence to its own original basic principles. It is, on the other hand, more logical to demand that modern conceptions regarding anatomy, physiology and pathology, when imparted to the medical student, should be welded into an interpertation of health and disease on the lines of modern medicine. It hardly seems likely that the education given in the newer schools of Ayurveda and Unani can make for a synthesis of the old and new conceptions into a coherent body of medical thought and practice. If, as seems reasonable to hold, modern medicine is best fitted to promote the development of organised community health services satisfying India's internal needs and her obligations to the external world, the continued production, with the active support of the State, of practitioners of the different indigenous systems on the lines indicated seems hardly justified. In making her decision in favour of modern medicine India will be following the example of China, Japan and Russia which have all accepted scientific medicine for the organisation of their health services. " In China and Japan, a moratorium extending to a definite period of years was declared after which the practice of the indigenous systems in those countries would not be recognised."* Such systems of medicine are not also recognised in any part of the Soviet Union.

Even so, it is believed that, until an adequate expansion of scientific medicine can be brought about in India, the public demand for indigenous medicine will continue and the training of practitioners in these systems is bound to go on under private auspices, although governmental support may be withdrawn. In the circumstances it is for consideration whether the regulation of such training is necessary and, if so, on what lines it can be undertaken. For the reasons already stated the type of training which is now given in the Ayurvedic and Unani colleges referred to above is undesirable. It gives the student, through the modern anatomy, physiology and pathology which he is taught, basic ideas which do not fit into the theory and practice of the particular form of indigenous medicine with which he is concerned. Two courses seem to be open. One is to decide that these systems should be taught on orthodox lines so as to incorporate only their own concepts regarding the human structure, its functions under normal and pathological conditions, and the methods of diagnosis and treatment of disease. Thus the course of training in each system will preserve its organic unity. Another approach towards the solution of the problem would be that based on the recognition of the fact that the fundamental purpose of medical and other types of education should be to develop the student's mind on scientific lines and to engraft the knowledge and practice of the particular branch of work for which he is equipped, medicine or other, on this foundation of scientific training. If this point of view is accepted, a complete course in modern scientific medicine would seem to be desirable as a pre-requisite to a man's undertaking training in the indigenous systems of medicine, because the former will give him an adequate background of scientific knowledge in regard to disease, its treatment and prevention. It is for consideration whether, in respect of schools and colleges of indigenous medicine maintained from public funds, it would not be desirable to to lay down the condition that those who are admitted for training should have had a full course of education in scientific medicine.

---

* Report of the Health Survey and Development Committee, Voulme II, p. 456.

The utilisation of the services of the practitioners of indigenous medicine in the State health services requires careful consideration. The establishment of parallel services based on each of the indigenous systems and on scientific medicine will prove disastrous, if the ultimate objective is for India to base its health organisation on scientific medicine and to keep herself in line with the progress which is being achieved in other countries in the conquest of disease and in the promotion of positive health. The provision of such parallel services will result in the development of vested interests which will eventually militate against the elimination of the indigenous systems in favour of the scientific system. At the same time the idea of utilising the services of practitioners trained in indigenous medicine under present-day conditions need not be discarded altogether. The need for as rapid an expansion of health services as possible is urgent and it is for consideration whether persons trained in the indigenous systems cannot, after such training as may be necessary, be employed as an integral part of the existing health organisation. Those who are trained in the newer schools and colleges of indigenous medicine have a background of general education of the Matriculation or the Middle School standard as well as some training in Anatomy, Physiology and Pathology. They can, with suitable training, be utilised for antimalaria work, immunisation of the people against infectious diseases and various duties in the field of environmental hygiene. The services of these practitioners of indigenous medicine can, it is considered, be utilised to best advantage in the rural areas, where they have provided, in the past, the greater part of the medical relief available to the people and where they will continue to do so for some time to come. The proposed additional training in preventive health work will widen their range of useful activity, while their incorporation in the existing State health service will prevent the creation of a number of parallel health services catering to the needs of the people. An essential condition for ensuring that scientific medicine becomes ultimately the sole basis on which the health organisation of the country is maintained will be the fixing of a date after which the creation of practitioners of these indigenous systems will cease.

There is at the same time the need for preserving whatever is useful in the indigenous systems and incorporating it in modern medicine. In this connection the recommendations of the Bhore Committee deserve consideration. It has suggested that research should be made into indigenous systems in order to secure for the benefit of the community such drugs as are shown to be of value. It has also suggested the establishment of a Chair of History of Medicine in the proposed All-India Medical Institute, one of the functions of which would be to study the indigenous systems with a view to the assessment of their real contribution to the sum total of medical knowledge. Similar chairs can also be established in existing medical colleges in one or two of our universities. Thus independent centres of research into, and study of, these systems will be established, where the Professors of History of Medicine would, in association with pharmacologists, clinicians and other medical workers, attempt to separate out and preserve whatever is valuable in Indian Medicine both in its theoretical and practical aspects. It is only such a continued process of dispassionate scientific investigation which will help to secure for us all that is of value in our medical systems.

In the light of the discussions in the foregoing paragraphs the following suggestions are put forward :—

(1) Governments should take steps to increase considerably existing facilities for training in modern medicine ;

(2) the training of students in indigenous systems of medicine under public auspices should be stopped after a date to be fixed by the Central and Provincial Governments or, if continued, should be limited to those who have had a complete course of training in scientific medicine ;

(3) all practitioners of these systems on a particular date should be registered and the practice of these systems by unregistered persons should thereafter be prohibited. Even so, there will remain, for twenty-five or thirty years, a reasonable number of practitioners of these systems to satisfy the needs of those who favour indigenous medicine ;

(4) those who have been trained in recognised institutions for indigenous systems should be given such further training as may be necessary and should be used as auxiliary personnel for the expansion of the health organisation on lines already indicated and

(5) the recommendations put forward for promoting continuous research into, and study of, the indigenous systems should be carried out.

(3) *The State health services and the medical profession.* The extent to which the medical profession will be called upon to participate in the functioning of the State health organisation will depend on the nature and range of functions proposed for that organisation. The ferment of ideas arising out of the war has brought to the forefront a recognition of the urgent need for measures designed to promote social security and the provision of adequate health protection to the individual is considered as an essential part of such a programme. It has been recognised that the contractual basis between the patient and the doctor, on which medical relief for the community has mainly developed in the past, has failed to provide reasonable service to large sections of the people. Further, the growing complexity of specialist and laboratory services required for the diagnosis and treatment of disease has tended to make medical aid of the requisite quality well beyond the paying capacity of all but the rich. On the other hand, the preventive health programme was started in all countries as the responsibility of the State and its ministration was extended to the rich and the poor alike without payment. This programme concentrated first on the improvement of environmental hygiene but gradually extended its activities into the field of personal health services, particularly in such spheres as maternity and child welfare, industrial health and the control of infectious diseases, including tuberculosis and venereal diseases. Preventive and curative measures should be applied simultaneously if adequate results are to be achieved and the personal health services developed by the public health authorities began to lay equal emphasis on both these aspects of medical protection. The State thus made itself responsible for the provision of

medical relief, although only in certain specific fields, and made such service available to all free of charge. A recognition of the importance of extending adequate diagnostic and treatment facilities over the whole field of human sickness has developed as the result of a growing sense of the State's responsibility for the health and welfare of all its citizens. So far the Soviet Union and New Zealand alone appear to have provided for their people such a service free of charge. Other countries, such as Great Britain, Canada and Australia, are also proposing to organise a national health service designed to serve the same purpose.

This brief reference to modern trends in the organisation of community health services is intended to show that the provision of adequate health protection, in its preventive and curative aspects, by Governments is becoming recognised in progressive countries as part of the " national minima " which the citizens have a right to demand. It is not the individual's ability to pay but the requirements of his state of health which should determine the nature and extent of the service rendered to him. In formulating her national health programme India cannot do better than adopt this as the objective to be achieved. The Bhore Committee took the same view.

In attempting to provide an organisation for this purpose the Committee took into consideration existing conditions in rural and urban areas. The evidence placed before it supported the view that a State health organisation in which the doctors are paid adequately and are prevented from private practice will alone meet the requirements of the countryside under present conditions. It is only such a service which can ensure that the doctor devotes himself adequately to his preventive duties and that the poorer sections of the community receive equal attention with their richer neighbours. The Committee considered that the position of the smaller towns was in no way different from that of the rural areas and recommended that these suggestions should apply to such towns also. In some of the larger district headquarter towns and in cities, general practitioners with high qualifications and specialists are often available, and the Committee recommended that their part-time services should be utilised for the development of the health programme, particularly in the earlier stages of development. While it has been pointed out that the utilisation of the services of doctors with high qualifications in an honorary capacity may be found necessary, the Committee suggests that their employment " in a paid part-time capacity is normally to be preferred to honorary service. The State would, in this case, acquire greater powers of supervision and control over a worker than if he gave his services free of charge."

The problem of enforcing prohibition of private practice by the doctors employed in public service has at least two aspects which require consideration. They are the question of adequate emoluments to compensate for the prohibition of private practice and the effect which such prohibition may have on the availability of medical service of reasonable quality to the people. The Bhore Committee has stressed that prohibition of practice should be accompanied by the grant of adequate scales of pay. The emoluments at present given by Governments to doctors of different grades in the provincial medical services differ in the provinces, as will be seen from the following figures :—

VARIATIONS IN THE MINIMUM & MAXIMUM OF THE SCALES OF PAY IN THE PROVINCES AND CENTRALLY ADMINISTERED AREAS FOR NON-I.M.S. MEDICAL OFFICERS

		Minimum	*Maximum*
(*a*) Civil Surgeons (Non-I. M. S.)	Rs.	300 to 600	600 to 1,000
(*b*) Assistant Surgeons	Rs.	140 to 250	300 to 600
(*c*) Sub-assistant Surgeons	Rs.	55 to 75	117 to 200

While variations in the cost of living between the provinces can and should legitimately be taken into consideration when their scales of pay are compared, the large differences shown above in respect of all the three categories of medical officers cannot clearly be ascribed to this cause alone. They represent, in a large measure, the varying rates of payment which individual Governments have considered sufficient for their medical officers. It is considered that, on these scales of pay, it will be unjust to prohibit private practice. For instance, a sub-assistant surgeon undergoes a course of training for four years after his Matriculation and, compared with the course of the same period taken by a graduate in arts or science of an Indian University, his medical training is more arduous and definitely more costly. Yet the scales shown above compare quite unfavourably with the emoluments available to an Assistant (Grade I clerk) in the Government of India Secretariat, and more particularly so when it is remembered that a sub-assistant surgeon in charge of a dispensary in an out-of-the way place, for instance, does work of a much more responsible nature and has to depend entirely on his own professional skill and intelligence while the work of the Assistant is generally carried on in a more leisurely fashion and under the guidance and supervision of a number of superior officers.

Prohibition of private practice may also affect adversely the public. In many stations, particularly towns of moderate size, the services of the Government doctor will, in all probability, be required by the people because of the relatively high professional skill and experience he would have acquired during his official career and the absence of equally qualified men in general practice. At the same time permission for unrestricted private practice is definitely detrimental from the point of view of the poorer sections of the community, who have equally a claim on his service, as well as of the general practitioners. The imposition of a restriction that the Government doctor should take up only consultant practice and that it should be carried on inside the hospital at stated hours and under the conditions laid down by Government regarding the scale of fees to be levied and the division of the money realised between him and Government, may prove to be a reasonably satisfactory solution of the problem. Such limitations should help to ensure that more time is devoted by doctors in public service to their official duties and that the interests of the independent medical profession are safeguarded against the effects of unrestricted private practice by medical men in Government service.

These proposals for a partial restriction of private practice by doctors in public service and for the employment, on a part-time basis, of general practitioners outside the service represent, it is considered, a temporary stage of development which will eventually give place to a whole-time salaried State health organisation, the members of which will not be permitted to supplement their income by private practice. The functions of such an organisation will go far beyond the provision of remedial and preventive measures to the sick and the convalescent. Its " range of duties will extend, to an increasing extent, over the healthy members of the community in order to promote their general sense of wellbeing. Medical supervision of work and play, of the food that people eat, of public provision for rest and recreation as well as periodical medical examination and the rectification of faulty modes of life will be some of the many new duties that the physician of the future will be called upon to undertake."* Such a programme extending over the rural and urban areas and offering adequate health protection to the rich and the poor alike can be built up only on the basis of full-time doctors, who are prevented from private practice.

Fears are generally entertained and expressed that a State health service on the lines indicated may lead to an impairment of efficiency through the security of tenure and the graded system of promotion which public service offers, while it is claimed that the competitive field of private practice provides full scope for the free play of the desire which impels the medical man to reach a high level of professional skill and of devoted attention to the needs of his individual patients. The answer to such fears must be a continuous attempt on the part of the State to regulate the conditions of service in such a manner as to emphasise efficiency as the only criterion for promotion and to organise a system of awards which will provide the stimulus for good work. On the other hand, the advantages of a socialised medical service for the community are incomparably great as against those associated with an unorganised system of private practice, because the former will help to promote the fulfilment of the following purposes :—

(1) the provision of equal medical attention to the rich and the poor alike ;

(2) the establishment of an integrated curative and preventive service ;

(3) extension of health services, which are adequate qualitatively and quantitatively, to the sparsely populated areas where private practitioners are unlikely to settle and

(4) the training of medical men in numbers sufficient to meet the requirements of the country and not in relation to the varying measure of success which the profession may offer to prospective entrants from time to time.

It cannot be over-emphasised that a fundamental condition for the development of an efficient and contented health service on the above lines is the provision of adequate emoluments to its members. Other public services, the professions and industry will all compete with medicine for the best brains of the country and, unless comparable rates of payment are made available, the State health organisation will be able to secure only persons of inferior quality.

(4) *The Training of Health Personnel.* Inadequacy of trained personnel for every branch of health work is perhaps an even more important impediment to

---

* Report of the Health Survey & Development Committee, Volume II, Chapter III.

the development of the national health services than lack of funds. Some idea of existing numbers of health workers in various categories and of those required if the Bhore Committee's plan is to be implemented may be obtained from the table below, which has been reproduced from Chapter I, Volume I of that Committee's report :—

Class of personnel	Number available now	Ratio of numbers in column 2 to the present population of British India (300 millions)	Existing ratio in the United Kingdom	Suggested ratio to be attained in 1971 in British India with an estimated population of 370 millions	Number required in 1971
1	2	3	4	5	6
Doctors ...	47,000	1 to 6,300	1 to 1,000	1 to 2,000	185,000
Nurses ...	7,000	1 to 43,000	1 to 300	1 to 500	740,000
Health visitors ...	750	1 to 400,000	1 to 4,770[1]	1 to 5,000	74,000
Midwives ...	5,000	1 to 60,000	1 to 618[2]	1 to 4,000 (or 1 per 100 births)	92,500
Qualified pharmacists[3] ...	75	1 to 4,000,000	1 pharmacist to 3 doctors	1 pharmacist to 3 doctors	62,000
Qualified dentists...	1,000	1 to 300,000	1 to 2,700	1 to 4,000	92,500

It has been suggested that the target in respect of each category should be attained in a period of about 25 years. The discrepancy between the numbers now available and those to be attained is most striking in the case of nurses, health visitors, midwives and pharmacists. As regards doctors a four-fold expansion is indicated. That the attainment of the objectives shown above should be within the range of practical realisation is evidenced by the achievements of the Soviet Union within the past few decades. In that country there were, in 1913, some 19,000 medical graduates and 16 colleges to train them. By 1941 the corresponding figures had risen to over 141,000 and 72 respectively. Thus the number of doctors had increased by more than seven times in a period of about 28 years. Is it too much to ask that India should achieve a fourfold increase in a period of 25 years ? The rise in the numbers of trained health personnel in other categories has been equally striking in Russia.

---

[1] Based on 1935 figure.

[2] Based on 1943 figure.

[3] Persons who have had training acceptable in countries where legislation controlling pharmacy exists.

Certain points in connection with our training programme may now be considered. One is the medium of instruction. Obviously, nurses, midwives, health visitors and health inspectors will normally work, after training, only in their own linguistic areas and insistence on the attainment of a knowledge of English up to the standard now required in respect of most of these workers will prove more an impediment than a help towards the realisation of the large scale training programme required in each case. The difficulties in making the vernacular the medium of instruction for these professional workers arise in two ways. Firstly, textbooks in the languages concerned will have to be made for the different courses of training. Secondly, for every type of worker, whether it be in the field of health or in other spheres, a reasonable standard of general education is essential for enabling him or her to discharge professional duties satisfactorily. Till recently English has been the medium of instruction in connection with general education throughout the country and, in order to ensure that the candidates who take up training as health visitors, health inspectors and nurses have an adequate background of general education as well as knowledge of English, the standard set for entrants has generally been the Matriculation of an Indian University or an equivalent examination. The change-over from English to the vernacular as the medium of instruction in Middle Schools and even High Schools, which is taking place all over the country, will automatically necessitate, in due course, the use of the vernacular for the professional training of these classes of workers. The national education programme will, if pursued with vigour, provide in course of time a large number of boys and girls with adequate general education, from whom candidates for the types of health workers mentioned above can be recruited for training. It is in the immediate future that the problem presents the greatest difficulty. If large scale programmes of training are to be established, it is for serious consideration whether persons with lower general educational standards cannot be recruited and whether a continuation course of general education cannot be provided as part of the professional training scheme. What is essential is to ensure that the workers are made competent to discharge their professional duties and, even if the desired standard of general education cannot be fully attained, the need for a rapid expansion of health services is so urgent as to demand the acceptance of a lower standard as inevitable during the present period of transition.

As regards their professional courses it seems equally desirable to change to the vernacular as quickly as circumstances permit. The use of the mother tongue will enable the student to understand more fully the instruction given to him as well as to carry out, when dealing with the people later, health instruction and other professional duties more effectively than with English as the medium of instruction. The preparation of text-books in the different languages of the country will no doubt present considerable difficulty, particularly in the initial stages. It will be of advantage to retain, as far as possible, technical terms and not attempt to find translations for them into every language.

As regards the training of doctors, there are certain other considerations which must also be taken into account. They will undoubtedly cross, during their professional career, linguistic boundaries and instruction in a language common to the country as a whole seems therefore desirable. Further, contact with the outside world is equally desirable, particularly for those medical men who devote themselves to research, teaching and the higher branches of professional work and of health administration. The claim for English to continue as the main medium of instruction appears therefore to be strong, in any case under present-day conditions. At the same time it is felt that there is room for the free use of the mother-tongue in each linguistic area for putting across to the student matters which he fails to understand fully when expressed in English as well as for enabling him to indicate clearly his own difficulties.

A dearth of teachers is another difficulty which stands in the way of a rapid expansion of the professional training programme for most classes of health workers. The Government of India and Provincial Governments are attempting to secure a partial solution to this problem through an overseas training scheme extending over a number of years. The organisation of postgraduate training facilities on an adequate scale in India and a fuller utilisation of existing facilities in this direction are also matters which are receiving attention. As and when trained teachers become available provision should be made not only for the establishment of new medical colleges and other training institutions but also for the functioning of existing training centres on a double shift system in order to increase their productive capacity.

(5) *The Production of Drugs and Medical Appliances.* The indigenous production of drugs and medical appliances with a view to making India self-sufficient as far as possible should be an important part of the country's health programme. These essential supplies will then become available probably at about a third or fourth of what the country may have to pay if she were dependent for them on foreign countries. Such diseases as malaria, tuberculosis, venereal diseases, dysentery and pneumonia can be fought successfully only if the production of the necessary remedies can be promoted on a sufficiently large scale and at a reasonable cost to meet the requirements of the country. Similarly, as nutritional deficiency diseases are also widely prevalent, the manufacture of vitamins in synthetic form and the production of articles of diet which contain these accessory food factors will also have to be developed on an adequate basis. India has a rich store of vegetable products from which drugs and essential and fixed oils of medicinal value can be extracted and the utilisation of these natural resources to the fullest possible extent is also necessary. An expanding drug industry is dependent largely on the manufacture in India of basic chemicals such as sulphuric, hydrochloric and nitric acids, caustic soda, chlorine, bleaching powder and other substances at a low price and on the production of certain coal tar derivatives in adequate quantities. These substances are also necessary for industrial development in the wider sphere and they play an important part in organising the country's war potential. There is an urgent need for promoting an adequate expansion of India's drug industry in the interests of economic progress and of self-sufficiency during peace and war.

The Bhore Committee has pointed out that an essential preliminary to the development of a national drug industry is the investigation of the various associated problems by a special Committee appointed for the purpose. The terms of reference which have been recommended for this Committee cover a wide field and are quoted below :—

" (*a*) What are the drugs and other medical requisites essential for general use in the country ?

(*b*) What practical steps should be taken to ensure their manufacture in the country in sufficient quantities and their sale at a price which will make them available to all who need them ?

(*c*) What are the circumstances which would justify the conclusion that the manufacture of any of these in the country is inadvisable ?

(*d*) What should be the respective fields of Government and of private enterprise in the manufacture of these requirements ?

(*e*) What aid and assistance should be given to private agencies in such cases and under what conditions ?

(*f*) What machinery should be established to develop research regarding drugs and other medical requisites and their production in India and to ensure the continuity and co-ordination of such research ?

(*g*) What machinery should be set up to ensure a steady flow of trained technical personnel ?"

The objective is to ensure the manufacture, in the country, of all the more important drugs and medical appliances necessary to meet the nation's requirements and Government should bear the responsibility for the attainment of this objective as rapidly as possible. " This responsibility should be interpreted as covering the necessity for ensuring that these requirements are met satisfactorily in regard to quantity, quality and price."

(6) *The Population Problem.* The importance of the population problem in relation to the health and welfare of the inhabitants of the country cannot be overemphasised. The subject may be considered in its quantitative and qualitative aspects. Taking the former first, all available evidence indicates that present levels of production are quite inadequate to meet the requirements of the country even in such essential matters as food and clothing. Any large increase in population is therefore likely to affect adversely the existing standard of living. An almost invitable result of the health development programme will be, at least for some time to come, to promote an enhanced rate of growth of population. As will be seen from the following figures* the tendency for a decline in the death rate has been more marked during the period of 60 years from 1881 to 1941 than in the case of the fertility rate.

---

* Quoted from an article entitled " Demographic Fact & Policy in India " by Kingsley Davis in Milbank Memorial Quarterly, July 1944.

Year	Estimated	
	Fertility rate	Death rate
1881-1891	49	41
1891-1901	46	44
1901-1911	49	43
1911-1921	48	47
1921-1931	46	36
1931-1941	45	31

An appreciable fall in the fertility rate is dependent on changes in the customs and social outlook of the people and it will therefore take time. On the other hand, a further reduction in the death rate is bound to occur with improved health services and better living conditions. A successful campaign against venereal diseases and other conditions of ill-health, which tend to reduce fertility, is bound to promote an enhancement of the birth rate and thus the balance of births over deaths will continue to grow. The Bhore Committee has expressed the view that, if its health scheme is carried out, the large increase of 83 millions in the population of the country which took place between 1921 to 1941 might well be accomplished, under the altered conditions, within a single decade. Such large additions to the population are bound to exercise a profound influence on the planning and execution of the nation's programme for social amelioration.

The qualitative aspect of the population problem is equally important. The opinion is widely held that the purposeful saving of lives, which might otherwise be eliminated, may adversely affect the composition of the population and reduce its quality. The experience of England, which has perhaps had a longer period of preventive health work among the people than other countries, seems to support the view that such an undesirable result is not likely to ensue.

The steady growth of population is bound to produce, it is felt, a rising tide of popular demand for the active propagation of the knowledge and practice of birth control. Individual couples are hardly able to control the complex socio-economic factors which surround their lives and family planning will therefore appear to be the method of choice to meet the situation. At the same time we are bound to recognise that certain evils, including antisocial and dysgenic tendencies, are likely to develop if an unrestricted campaign of birth control is promoted under the stress of public opinion. A widespread use of contraceptives by the married section of the community may promote such a contraction of the birth rate as to endanger the maintenance of adequate numbers at the age levels most favourable for ensuring maximum national productivity. Pre-marital and extra-marital sex relationships based on birth control are bound to produce a disturbing effect on the sanctity of home life, to the detriment of the welfare of parents and of children. The deliberate dissemination of knowledge regarding contraception may tend to divorce a sense of responsibility from the sexual act and thus promote a loosening of the moral fibre of the community. The latter is the cement that binds society together and is the foundation of all social relationships based on reason and justice. There is also the danger of the spread of venereal diseases. The apprehension with which many regard a campaign for birth control is therefore genuine and the possible danger to the welfare of the community cannot be ignored.

The fear is also entertained that contraception may be practised more widely by the energetic and successful classes in the community than by others and that the resulting changes in the fertility rates of the different sections of the people may have an adverse effect on the wellbeing of the nation. However, as has been pointed out by Professor Crew there is reason to believe that " hereditary worthiness is not the monopoly of the socially successful, that the circumstances of the environment condition the expression of the hereditary constitution of an individual, that there is an abundance of first-class stock submerged by its social environment and that, given opportunity to escape, such will flourish "......................................" The professions have been, and still are, regularly recruited from among the children of the heavily labouring classes. The overalled parent begets a black-coated son quite commonly. It is the case in Scotland that the agricultural class has shown a remarkable ability to provide first-class recruits for other occupational groups."* The experience of the Soviet Union would seem to point the same way. The Russian Revolution threw open to the peasants abundant opportunities for education and for social advancement and a large number of those who occupy important positions and are associated with the shaping of modern Russia has been drawn from the peasant stock. In the circumstances there is no reason to assume that, in India also, the distribution of innate ability among the people will not be on the same wide basis.

There is also the question of transference from one generation to another of certain undesirable physical and mental characteristics. While sterilisation has been legalised and practised in certain countries to meet this problem, the inadequacy of existing knowledge regarding the part which heredity and environment play in the transmission of such characteristics has prevented State action in most countries.

The population problem is only one of the many aspects of the fundamental question of man's continual need of adjustment to his environment, if he is to remain in a state of wellbeing and even to survive. This environment includes man himself and the physical world in which he lives. All through the ages he has helped to maim and kill his fellowmen through war, economic strife and the spread of disease. His survival and the creation of conditions promoting individual and collective security are dependent on his being able to overcome such dangers.

Similarly, the dangers arising from a maladjustment of the population to the resources that are available must also be faced and conquered. The methods adopted are bound to be many. A purposeful effort to raise national productivity is one. Volitional interference with the rate of growth of the family is likely to be another. The antisocial tendencies which are bound to follow the widespread use of contraceptives will probably be met by educational work designed to raise the sense of responsibility of the individual towards himself and the community. The dysgenic effects of the higher birth rate of certain sections of the population and of the transference, to succeeding generations, of undesirable mental and physical traits will no doubt be countered in due course by appropriate measures, when adequate knowledge regarding the laws of inheritance becomes available and when the public conscience is stirred to a recognition of the justice of such measures in the interests of the welfare of the generations yet unborn.

---

* "Some More Medical Views on Birth Control", Ch. IV, (Edited by Norman Hair), Cecil Palmer.

No reasoned argument can be advanced for showing that the dangers can and will definitely be overcome. The views set out above constitute only an affirmation of faith that the soul of goodness, which lies interpenetrated with the imperfections of all human endeavour, will eventually triumph over the forces of destruction and decay. No proof of such ultimate success can be forthcoming, although it may not be unreasonable to hope that, as man's wellbeing and even existence are at stake, such adjustments as are necessary to counteract the anticipated evils will in due course be made. In the meantime it is incumbent upon us, the men and women of the present generation, to devote ourselves, for our own sake and for the sake of those that follow us, to the task of building the Temple of National Health. In doing so we, with our limited vision and intelligence, cannot rid ourselves of the fear that certain dangers to social welfare may be brought into existence. At least some of them will be the result of a maladjustment between the interests of the individual as conceived by him and the true interests of the community. It is considered that the demand for the development of the public health to the highest possible level is based on social justice. The pursuit of social justice as an ideal can alone pave the way for the resolution of all conflicts of interest between the individual and the group or nation to which he belongs.

PHYSICAL EDUCATION AND RECREATION FOR NATIONAL HEALTH

Good heredity, health and sanitary surroundings, adequate diet, wholesome exercise, and proper medical care are the foundations of good health. Health, in the minds of most people, is considered merely as freedom from disease. A great many people are living below their best level of attainment. Many believe they are healthy because they are not sick. Health is a positive quality. It is that condition of the individual that makes possible happiness and enjoyment in life, and shows itself in the best service to the world. It involves keeping one's body and mind at the highest levels, living at one's best and not being satisfied by mere absence from the sick-room. Dr. J. F. Williams of Columbia University defines health as 'the quality of life that renders the individual to live most and to serve best'. This definition of health should draw the attention of all those who seek merely the liberation of man from disease, physical weakness and inefficiency. Living at one's best is more than this. For such a life physical vigour is fundamental. The body must be so developed that it will become the temple of the soul, and will be a servant ready and trained to serve high cause and noble ends. 'Health as mere freedom from disease is a standard of mediocrity; health as a quality of life is a standard of inspiration and increasing achievements.'

Benefits of Exercise

Play and other forms of planned physical activities are essential for attaining optimum health. Heredity will do its part as a foundation; food, air and sunlight are necessary; preventive hygiene must be practised to keep off disease and remove defects. Yet, after all is said and done, it is activity that stimulates growth and development. Inactivity means inefficiency; in the case of muscles it leads to deterioration and even atrophy.

Muscles are directly developed both in size and quality by exercise. Development of certain groups of muscles, particularly those of the trunk and abdomen are of importance for maintaining satisfactory health. Good posture and strong agile body are assets of great value whether in war or in peace.

Exercises have an even greater contribution to make in the development and efficient functioning of the vital organs of the body. Heart and circulation, respiration, digestion, excretion and some of the functions of the nervous system are all beneficially influenced by exercise.

Physical Education

The term 'Exercise' conveys the idea of artificial movements such as raising and lowering the arms, and bending and twisting the trunk. If faithfully and regularly done, well selected exercises such as the 'daily dozen' can help to keep one fit. But such artificial movements are dull and unappealing and very few take to it with real interest or keep it up for any length of time. Man's physical activities should not be confined to these artificial movements. Natural and racially old activities such as, walking, running, climbing, hanging, throwing and lifting are more appealing and more beneficial. Any programme recommended for an institution or a country should include and emphasise these activities. Terms such as exercises, physical training, sports, etc. are too narrow in scope and conception. The term 'Physical Education' is now adopted not only to include the many varieties of physical activities, but also to emphasise the educational aspects of physical activities. In this wide and significant sense physical education is defined as the sum total of man's big muscle activities conducted for beneficial outcomes. Included among such activities are games, sports, gymnastic exercises, folk-dances and a variety of other physical activities which will enable a person to get fit and to keep fit. Physical Education is interested in the development of the whole man, and when rightly conceived, is appreciative of its opportunities for the development of desirable mental, moral, and social qualities. As we consider it, in the present problem of national health, its primary concern is big muscle activity which will lead to organic health and muscular development.

Conditions in India

In planning a programme of physical education and recreation for the country, there are some important factors peculiar to India to be kept in mind.

(1) India's population is mainly in rural areas, and is scattered over lakhs of villages, some of them large, some of them very small. There are also many large cities and towns and there is a growing movement of large numbers to such urban areas. Recreation for the rural as well as urban needs must be provided.

(2) Economically, the country as a whole is poor. There are great divergencies in wealth. There are many who are rich and can afford to spend large amounts in recreations of any kind. For them, whatever is attractive and popular can be provided without great considerations regarding cost. Such people are, however, only a few. For a few thousand rich and a few lakhs of middle class people there are millions who are poor. A nation wide programme should provide for the poor as well as those who are well off.

(3) Conservatism and too much faith in old traditions, prejudice people against anything new. Illiteracy and lack of education will be stumbling blocks in introducing a new plan of recreation, just as it always has been in popularising anything new. Purdha, social disabilities and inequalities, heavy domestic burden, etc., are factors which will probably militate against recreation reaching the women of the country. In recent years there is a pronounced feeling that play, recreation, enjoyment and laughter are unbefitting and should be tabooed. These are treated as luxuries of the idle and the rich. The poor must sweat and work in sorrow, and the pleasures of this life shall not be their share. Any time, that is not gainfully employed, is wasted time. There is also a growing notion that he who takes care of his body, exercising it and developing it, is no good. Society dubs him as a goonda and a bully.

(4) Undernourishment and malnourishment are chronic, and vast problems in themselves. Strenuous exercises are likely to do harm to a people that is undernourished. By carefully planned programmes which are more recreational than

strenuous even these people can be provided for. Recreation to them would mean happiness, which in turn may make them more efficient, and economically more productive. Those who, however, are in a more fortunate position getting the nourishment they need, can take to healthy vigorous activities that will make them fitter and stronger.

(5) Dependence on aid from outside has become a great weakness with our people. If anything goes wrong people seem to be happy if they can blame Government or some other agency or group other than themselves. The faith in the strength of the community and what it can achieve seems to have vanished from the country. There are very few community projects or undertakings. If anything new is to come it must come from 'above', from somewhere outside. This sense of dependence is a symptom of weakness and stagnation. Organised recreation, if ever to be successful, should become a matter of local concern. Leadership, initiative and support must be from within the village or locality. In the early stages, however, propaganda and organising will have to be undertaken with sufficient outside help.

Existing facilities

Before discussing any new scheme it is desirable to find out what agencies exist at present for promoting games, recreation and physical activities. In Primary Schools, Secondary Schools and Colleges physical education is now being promoted in an organised way. In some Provinces compulsory requirements are laid down while in others participation is optional. For the public in urban areas games and recerations are usually organised by private clubs, Gymkhanas and sports organisations. The middle class and the upper class people, who become members of such clubs, get the benefits of the different types of activities promoted there. The poorer classes go without organised recreation, except when provided by industrial employers, welfare organisations or Municipalities. Occasionally, attempts are made by individuals or small groups, even among the poor, to get together for common exercise, singing or other recreation.

Rural India used to have fine traditions of indigenous sport, wrestling, and exercising around an *akhada*. Club swinging, *Lathi* practice, various vigorous games, folk-dances were very common. In recent times there has been a considerable setback in these fine activities. While it is still possible to meet old people who speak of the fun and combats of their young days, the present-day youth is generally ignorant of, and indifferent to these traditions. However, in certain provinces, such as Bombay, the Punjab, the United Provinces, etc., many villages have *akhadas* where various kinds of vigorous manly activities, particularly wrestling, are taught and practised. In a few cases, due to poor leadership and guidance, some of these centres do not possess a good reputation, and people who go there are thought of as bullies. Right emphasis and proper leadership can change such existing prejudices.

Suggested Scheme

No single scheme can be applicable to the whole country. It should vary from province to province, and locality to locality. A broad outline, however, is suggested below.

Physical Education and Recreation in the country must cater to the urban and rural population. The needs of the urban people, their habits and background are such that they would not take enthusiastically to a programme suitable for the villagers, nor can the villagers be expected to respond whole-heartedly to activities and situations which are new and strange to them.

A. URBAN RECREATION

(*i*) *Private Agencies :* The co-operation of all existing organisations should be sought to promote their activities on a broader and more intensive scale to reach larger numbers. Encouragement should be given to such organisations to start new branches. Organisations such as the YMCA, Boys Scouts Association, Hockey Association, *Vyayam Mandals*, Olympic Association, Ramkrishna Mission, Football Association, Wrestling Federation, Swimming Federation, etc., should be requested and encouraged to extend their activities. Increased facilities in the form of playgrounds, buildings, and maintenance grant may be given as encouragements. The National Playing Fields Association of England provides similar attractions to encourage the starting of new play and recreation centres. The National Recreation Association of USA provides technical guidance and financial assistance to promote organised recreation. In Russia and some other European countries the State provides these facilities with State Funds.

(*ii*) Municipalities and Local Bodies should provide public playgrounds with leadership where the underprivileged and poorer classes can get the benefit of play and recreation. Such Centres should be open for all and no fee of any kind should be charged. Calcutta, Bombay and Madras have Municipal Play Centres. But their number being inadequate they serve only a very small section of the population.

(*iii*) *Industrial Welfare :* As a part of the welfare work for industrial labourers, all industrial concerns should be required, by legislation, to provide adequate recreational facilities for their labourers. Such centres and their work should be open to Special Recreation Organisers, for inspection, and should be subject to their advice.

B. RURAL AREAS

Greater guidance, facilities and aid for recreation will have to be provided in rural areas. The utility of the existing *akhadas* and other recreative agencies in the villages should be extended. Encouragement should be given to start new centres, if none exist. Every village should be, in course of time, helped to develop its own playground and recreation centres. Special Recreation Organisers, appointed for the purpose, should seek the co-operation of the local people and try to start rural centres. The villagers must be made to feel that the Centre is their own, and should be entrusted with the responsibility of maintaining it as a Village Institution. In the early stages, encouragement may be given with some financial assistance, if this is thought to be advisable. A small group of villagers, a local committee or the village Panchayat may be entrusted with the responsibility of seeing the Centre functioning properly. A young villager, keenly interested in physical activities, may be appointed as the leader of the Centre.

Programme: The programme of activities to be promoted, will depend on the type of people for whom a centre is working. Activities in urban areas are sure to be different from those in rural areas. Even in rural areas the programme will change according to the group, and again, for a group, seasonal changes would demand varied programmes. Facilities available, extent of playgrounds, enthusiasm for certain types of activities, etc. will differ from place to place. Activities can be selected out of a large number that is popular and useful. Wrestling, *Dands, Baithaks, Lathi,* Weight lifting, Gymnastics, Free Hand Exercises, *Hu-tu-tu* or *Kabaddi, Atya-patya, Langdi* and other indigenous Games, Cricket, Foot-ball,. Hockey, Volley-ball, Basket-ball, Boxing, Net-ball, Playground-ball, Rounders, Indoor games of various kinds, Folk-dances, Group singing, Bhajans, Parties, Dramas, Cinemas, Camping, Hiking, Swimming, Boating, Athletics, etc., are a few of the possible activities. In developing any programme, special attention must be given to attract the women of the community to join in the activities.

Organisation: In countries where dictatorial Governments exist, recreation has been mainly the concern of the State. Physical activities were thought not so much in terms of health and happiness, but in terms of physical fitness and preparedness for war. In democratic countries such as England and the United States of America, recreation has been promoted more by voluntary agencies. In Italy it was a case of 'every one must'; in America it was a case of 'here are the facilities won't you come and join'? In India the Physical Education and Recreation Movement cannot be left entirely in the hands of voluntary agencies. Government Planning, Government guidance and Government aid must be provided. Every encouragement should be given to well established organisations and new enterprises to plan and promote recreation. Advice and technical assistance, through a Government agency, specially appointed for the purpose, should be given to these voluntary organisations.

Where there are no Associations to take up such work at the beginning, Government or the Local Body should start centres. Such centres except in rare cases, are best handed over to some local agency, already existing or newly formed.

In short, Recreation in the country should be under the guidance of Government, but the responsibility of conducting recreation centres, playgrounds, etc., should be entrusted to voluntary bodies and specially formed non-official agencies.

Government Machinery: For drawing up and laying down policies, to give advice, to encourage the establishment of play centres, and generally look after the Physical Education and Recreation Movement in the country, a special Department called the 'Department of Physical Education and Recreation' should be established at the Centre as well as in all the Provinces. All States should also be encouraged to take a similar step. This department should have specially trained and qualified men and women appointed on the Staff. These people will act as promoters and organisers of recreation, visiting places where their help is required and rendering help and advice. The Headquarters at the centre will function to co-ordinate Physical Education in the country as a whole, receiving information, compiling statistics, laying down policies, keeping up contact with recreation movements in other countries, making new experiments, etc. In each Province there should be a Provincial organiser working under a new Department of Recreation or under one of the existing Departments such as the Department of Health or Education. The Provincial organiser should have under him District organisers to be in close contact with the work going on locally. Details of relationship between these organisers and Associations conducting play centres can be worked out in due course.

Training of Workers : If this scheme or something similar to this is undertaken by the Government it will be necessary to have trained leaders, in large numbers. Madras, Bombay, Calcutta, Lucknow, Lahore and Hyderabad have at present, Colleges of Physical Education. The emphasis in most of these Institutions is, at present, on physical education from the school point of view. Necessary modifications which are not many can be made in these centres, to train public recreation workers. Additional new centres, if required, or special training camps can be started to meet the demand for a large number of workers.

Finance : It is difficult to give the details of likely expenditure for a nationwide scheme of recreation. Government must, however, be prepared to finance such a scheme liberally. Improved health, resulting from active physical exercise, and the accompanying happiness, optimism and efficiency will pay a hundredfold return to any investment in this scheme. Greater national vitality, improved productive power, reduction in illness and misery, improved social intercourse and understanding, can help India to grow into one of the foremost nations of the world.

In the beginning, enough money should be provided to set up organisations at the various Provincial Headquarters to initiate the scheme. As time passes sufficient workers will have to be engaged to promote the work in many places. Grants, which should be liberal in the early stages, should be paid to organisations undertaking the promotion of physical education and recreation. Playgrounds and other facilities should be acquired and provided. If voluntary Associations are not available to undertake the work, Municipalities, and other Local Bodies or Government directly, may have to start such Centres.

In the course of ten years, as the movement grows and as more and more Centres are established expenditure to Government will rise and perhaps reach a a maximum. When it is observed that Local Communities have begun to appreciate the benefits of such centres, an attempt should be made to see that these centres are maintained as far as possible by local efforts, local financial contributions, and voluntary workers. The introduction of such a change should be gradual and cautiously undertaken. People must not feel that support is being unfairly withdrawn. Depending upon the enthusiasm and response inspired in the people, it may be possible gradually to do away with Government grants in the course of about fifteen years. However, a directing, advising and supervising agency should be maintained by Government as a permanent establishment.

Approximate figures for the scheme can be worked out if certain details are supplied by the Government.

Conclusion : No National Health Planning can be a complete success without provisions for a national Physical education, physical fitness and recreation movement. The work of medical aid, sanitation and scientific nutrition can be effectively supplemented by a properly promoted programme of physical education. A certain proportion of the nation's financial resources and efforts should be contributed for this very important and constructive work.

THE PROBLEM OF NUTRITION IN INDIA AND SOME ASIAN COUNTRIES

In the opening years of the twentieth century the concept of nutrition centred round the idea of adequacy. It was generally believed that if an individual had enough to eat there was no need to worry. Unfortunately one did not know for certain whether all human beings had enough to eat. With the advance in the science of nutrition it was gradually realised that not only the quantity but quality of the diet was an important consideration in the maintenance of health. With the discovery of deficiency diseases and their relation to faulty diets thinking people in many countries began to ask questions. Foodstuffs were analysed by the thousand and their quality in terms of essential nutrients was determined. Next followed the dietary surveys carried out in all parts of the world. Meanwhile, the knowledge about the basic requirements with regard to dietary needs was advancing steadily. The knowledge thus gained was applied to study the needs of communities. It soon became apparent that many communities subsisted on faulty and even insufficient diets. In the more advanced and richer countries the number of malnourished people was small although it was appreciable. In backward and poorer countries malnourishment was found to be widespread and what was more painful to find was that a fair proportion of the population was undernourished as well. If this was so, who was responsible for this state of affairs, the individual, the community or the state ? The answer to this question has been forthcoming only recently.

In 1943, the United Nations' Conference on Food and Agriculture held at Hot-Springs, USA during the war declared that 'the primary responsibility lies with each nation for seeing that its own people have the food needed for life and health; steps to this end are for national determination. But each nation can fully achieve its goal only if all work together.' Thus the responsibility of the state in ensuring adequate nutrition for all of its citizens has now come to be accepted. The Nutrition Advisory Committee of the Government of India took this view fully into consideration when it recommended in 1944 that 'the welfare of a people is so dependent on good nutrition that governments must assume responsibility for assuring it by all means in their power.' It must therefore be emphasised that the problem of nutrition which has become acute in most Asian countries can only be solved if attacked by the governments concerned. Piecemeal efforts by lesser agencies are doomed to failure; this problem has reached a stage when it can no longer be ignored without causing almost incalculable damage to the health of the present and the succeeding generations. The problem itself can be stated in simple terms since it ultimately resolves itself into (*a*) the production of food in quantity sufficient to meet at least the basic needs of the population and (*b*) to increase the purchasing power of the people so that even the poorest among them can afford to purchase all that he needs for nourishment. Stating the problem thus is probably over-simplifying it. A moment's thought, however, will convince anyone that the entire range of a nation's activities are incorporated in these two sentences.

Till recently state administrations had a tendency to believe that nutrition was the sole responsibility of the Health Ministry and that no other Department of State need bother about it. Fortunately for the people that idea has given way to a broader conception of the ramifications of the problem.

The production of food presupposes a very active Agricultural Department of the State. The agricultural produce has to be supplemented by food obtained from other sources such as milk, meat, eggs and products of inland and marine fisheries. Much of the food thus produced would go waste if adequate facilities for quick transport and preservation are not readily made available. The economics of food production and marketing also require close study in the interests of the producer as well as the consumer. The health organisation has the function of keeping a watch over the quality of marketed food and watching the effect on the health of the population of the shortage of food of any particular kind, or of all kinds. It has also the role of educating the public to eat the right kind of food, and to set up standards for requirements or allowances which should act as a guide for food production and distribution. It will thus be realised that co-ordinated action on the part of the whole administration is the only way in which the problems of nutrition can be satisfactorily solved.

Although basically the problem is the same for all nations in the world, it is bound to be different in details even for countries on the one continent of Asia. The area covered is vast spreading from the polar to the equatorial regions and differing in climate, racial distribution, density of population, dietary habits and the nature of the soil. It is natural, therefore, that local conditions would determine to a great extent the nature of the actual problem. The scientific knowledge on nutrition gained during the last twenty years, however, permits discussion of these on a common basis of certain fundamental principles.

The information relating to nutrition in different countries in Asia has been extremely limited. There is almost a complete lack of knowledge concerning Soviet Asia and countries of the Middle East. A certain amount of information used to be available before the World War II from China, Japan, Philippines, Indonesia and the British Colonies in Asia. The war, among other things that it did, put an end to this. Some authoritative accounts are obtainable, however, from the following publications : (1) *Report of the Inter-Governmental Conference of Far Eastern Countries on Rural Hygiene* held at Bandoeng in Java (1936), (2) *The Proceedings of the 10th Conference of the Far Eastern Association of Tropical Medicine* held in 1938 at Hanoi in French Indo-China, (3) *The Report on Nutrition in the Colonial Empire* published in 1939 by the Committee on Nutrition in the Colonial Empire under the auspices of the Economic Advisory Council of Great Britain and (4) ' A Review on Nutrition' by Van Veen of Batavia appearing in Volume XI (1942) of the *Annual Review of Biochemistry*. The reports of (*a*) the Nutrition Advisory Committee of the Indian Research Fund Association—which is also the National Nutrition Advisory Committee for India—since 1936 to date and (*b*) the Health Survey and Development Committee of the Government of India (1946) have been extensively drawn upon for information concerning India.

A study of all these reports points to the following general conclusions: (*a*) In most countries the food produced has not been sufficient to meet the needs of the people, (*b*) poverty amongst a great majority of people compels them to remain undernourished, (*c*) ignorance coupled with prejudices and other psychological factors contribute to prevent the effective use of whatever nutritious food is available, (*d*) the deficiency diseases and subclinical states of deficiency are quite frequent in all countries under review.

Such were the findings before the outbreak of the War in 1939. The conditions have considerably worsened since then and there is hardly any doubt that the ill-effects arising out of all the factors mentioned above have brought the problem of nutrition to its present acute stage. The study of these reports also reveals the fact that the proposed steps towards ameliorating these conditions suggested by the authorities of the various nations concerned follow almost similar lines.

At this stage it would be useful to give in brief some information on nutrition in some of the Asian countries.

Ceylon : Nearly two-thirds of all food-stuffs consumed in Ceylon is imported. Rice is the staple article of diet, two-thirds of which is imported as polished rice. Unpolished rice is eaten in rural areas and in the dry zones of the north. Leafy vegetables, tubers, beans, gourd etc., are used as supplementary articles. Fish is eaten by the poor classes, meat is rarely taken, and milk, and milk-products, are seldom used. The diet of the people is deficient slightly in calories, calcium and in vitamins A and B complex. Among the poorer classes deficiency diseases such as phrynoderma and sore mouth are common. Much of the blindness is due to lesions resulting from vitamin A deficiency and is preventible. Infant and maternal mortality is also alarmingly large.

Malaya : Rice is the staple grain supplemented with pulses and vegetables and red palm oil. Fish is the only animal food, milk and meat being rare. The Chinese in Malaya have a better diet; besides rice they eat vegetables, soya beans and pork. Milk has no place in their diet. The diet in rural areas, especially among the poorer classes is deficient in energy value, proteins of high biological value, vitamins and probably minerals too. Beriberi, xerophthalmia and other deficiency diseases are not infrequent.

Indonesia : Rice, maize, cassava and sweet-potatoes form the principal carbohydrate sources. In some parts rice forms the more important article of diet; in others maize takes its place. In rural areas unpolished rice is used, the more affluent classes using the polished variety. The method of cooking rice is interesting in that it is cooked by steaming and not boiled with water. Soya beans, tubers and vegetables supplement the diet which in the main is vegetarian. Along the sea coast fish enters the dietary of the inhabitants. Meat is rarely eaten. Milk is still more rarely taken. The animal proteins and animal fats in the diets are at an extremely low level. The calories vary between 1,800 and 2,600. The general state of the health of the people is not bad. Beriberi is a potential danger mainly to city dwellers. Scurvy, rickets and pellagra are unknown. Xerophthlmia, keratomalacia and haemeralopia are known to occur in many places. Phrynoderma and angular stomatitis are also met with.

Siam : Polished rice together with curry containing small amounts of fish and meat, mashed red pepper with negligible amounts of fish parts or small bits and occasionally vegetables and fruit form the Siamese meal. Two meals a day is a common practice. The poor dietary has its effect on the health of the people. Children and pregnant women are undernourished and malnourished. Beriberi is a pressing problem. Rickets, goitre, anaemia, vesical calculi, parodontal disease, skin disease, etc., are other common diseases having their origin in a faulty diet.

Philippines : In addition to rice the Filipino diet contains vegetables and fish. The last is abundant, cheap and forms an important article of the diet. Milk consumption is practically negligible. In general, however, the diet is characterised by deficiency of calcium and iodine and vitamins A, B_1 and C. The rates of incidence and mortality from beriberi are unusually high. Rickets is fairly widespread and scurvy is not unknown. Even the well-to-do people frequently show signs of malnutrition.

Japan : The population of Japan is 80 millions and the density 374 per square mile. Even with intensive farming Japan was not self-sufficient with regard to its food. Foodstuffs obtained from her colonies and a very well developed fishing industry supplemented the produce of the land. Rice, which is the staple cereal, is sometimes supplemented with other cereals like barley, wheat, maize, millet, sweet-potato, potato etc. Vegetables and fruits, fish and meat are served with rice. Soya bean and some pulses are also consumed. Sea-weed and its products are used as human food. Meat and milk consumption is extremely small. Beriberi, Scurvy, rickets and eye diseases are frequently met with. The infantile mortality for 1934-1939 was 115 per thousand live births.

The foodstuffs consumed in Japan have been thoroughly analysed for their nutritive value. The Imperial Institute of Nutrition at Tokyo has been interested in all problems connected with practical aspects of nutrition. Prof. Saiki, the Director, favoured the idea that not only must the daily diet be balanced, but that every meal should be so.

During the war food was rationed in Japan, the ration being fairly generous. During later stages of the war fish was scarce resulting in protein shortage. This may have a deleterious influence on the health and growth of children and adolescents.

Indo-China : Rice is the most important cereal food. Maize is eaten where rice is not available. Soya bean in its various preparations also features prominently in the dietary of the Indo-Chinese. Tapioca, sweet-potato, yams and other fruit, root and leafy vegetables supplement the diet. Where people can afford it, fruit is also eaten. Pork and fish, fresh or pickled, supply the animal protein moiety of the diet. Milk consumption is practically nil. In the poorer classes the diet is often insufficient in quantity and very poorly balanced. Beriberi is an important public health problem. No information on other deficiency diseases is available.

China : The Chinese diet shows preponderance of cereals with a low proportion of animal food and lack of milk. Rice forms the staple food in South China, while wheat takes the first place in North China. Millet and maize are also used as human food. In 1937 the soya bean consumption was estimated at not more than 4% of the total consumption of staple foods. Roots and tubers and leafy vegetables are commonly used and fruits only rarely. The consumption of meat and fish is very limited. The Chinese diets are deficient in (*a*) proteins of high biological value, (*b*) calcium and (*c*) vitamins A and B_1. Among the deficiency diseases xerophthalmia, phrynoderma, rickets and osteomalacia are commonly met with. Goitre is endemic in certain regions of North China, whereas beriberi is common in South China. Scurvy and pellagra are comparatively rare.

India ; The Indian diets are also based primarily on cereals. In the provinces of Bengal, Madras and the coastal areas of Bombay province rice forms the staple cereal. On the Deccan plateau rice is largely replaced by millets like ' jowar ' (*sorghum vulgare*) and ' bajra ' (*Pennisetum typhoideum*). In wheat-growing areas of north and west, that is the staple cereal. There are certain regions where mixtures of cereals are used in daily dietaries. In the south another cereal called ' ragi ' (*Eleusine coracana*) is the only cereal found in the diet of very poor people. Pulses and vegetable oils form useful adjuncts, vegetables being used sparingly. The use of meat, fish, eggs, milk, and milk products is determined by the economic status of the individual. Fruit is consumed occasionally, mainly during seasons when particular types of fruit are abundant and cheap. In the main, therefore, the poor man's diet in India does not materially differ from that of his opposite number in the other countries mentioned above. The deficiencies are multiple. The diet is insufficient in calories, deficient in calcium, and many vitamins. The influence of this faulty diet is reflected in the health of the population. The infant and maternal mortality is high, the resistance of people to infectious diseases is low and specific deficiency diseases, e.g., night-blindness, Bitot's spots, keratomalacia, beriberi, angular stomatitis, phrynoderma, rickets, simple goitre and anaemias are prevalent.

The information presented thus far shows beyond doubt that the bulk of the people living in the most populated regions of Asia and amounting to nearly half the total population of the globe have been subsisting on faulty and probably insufficient diets. That the respective governments were not unaware of the fact is not in doubt. It can reasonably be concluded that basically the causes for this state of affairs were almost similar. There should be little wonder, therefore, that the remedies suggested have also been somewhat similar. They amounted to (*a*) intensive and extensive dietary surveys, (*b*) improvement of methods for the assessment of state of nutrition of representative population groups, (*c*) evaluation of dietary allowances having regard to local conditions, (*d*) research, and (*e*) education and propaganda. It must be emphasised that these steps by themselves are not sufficient as a permanent solution. As has already been pointed out the only solution lies in (*i*) growing more food of all kinds, (*ii*) distributing it equitably, (*iii*) devising ways to utilise it to the fullest extent, and, the last but not the least important, (*iv*) improving the economic condition of the poorest population groups. These suggestions, simple as they appear, cut across the entire national activities of a people and more often than not the administrative difficulties deter the most stout-hearted administrator from attempting to put them in practice. Immediate and drastic action has to be taken and, that too, on a co-ordinated basis by the government of any country if success is to be achieved.

In view of what has been said above it will be instructive to present now a brief account of the manner in which the Nutrition Advisory Committee in India proposed to tackle this problem. The Committee is a representative body and its personnel consists of (*a*) the Public Health Commissioner with the Government of India (Chairman), (*b*) the Director of the Nutrition Research Laboratories, Coonoor, (Secretary), (*c*) other representatives of research workers in nutritional science, (*d*) one or two Provincial Health administrators, (*e*) the Agricultural, Animal Husbandry, Food, Education and Economic Advisers with the Government of India and (*f*) one non-medical scientist of repute. The body thus represents all interests likely to be connected with nutrition and therefore the recommendations of the Nutrition Advisory Committee carry great weight. The Committee meets once or twice a year to (*a*) take stock of the work on nutrition carried out in different provinces and states of India, (*b*) consider the research work in progress and the proposals for new investigations and (*c*) to consider any subject sent to it by Government agencies, provincial or central. It is thus in a unique position to have its finger always on the nutritional pulse of the nation.

In 1943, the then newly appointed Health Survey and Development Committee of the Government of India charged the Nutrition Advisory Committee with the task of preparing a report on Nutrition dealing with '(*a*) the existence and extent of under and malnutrition in India as shown by agricultural production data and surveys of diet and state of nutrition; (*b*) Deficiency diseases; (*c*) Education and Propaganda; (*d*) Nutrition departments in Provinces and States and public health nutrition work generally; (*e*) plans for improving nutrition.' It is not necessary to give in detail the deliberations of the Committee. Its recommendations are briefly outlined below :

1. The Government must assume responsibility for ensuring adequate nutrition for every individual.

2. The statistics regarding the production of foods of all kinds whether from soil, stock or sea are extremely inadequate and hence immediate steps should be taken to remedy the situation.

3. Taking into consideration the incomplete and unsatisfactory data of food production and the results of dietary surveys the Committee felt that the total amount of food was grossly inadequate. It therefore urged the Government to take steps immediately to increase the production of food of all kinds. The Government should be guided in this respect by the dietary standards or allowances based upon scientific assessment of the quantity and quality of food required for positive health.

4. The diet surveys carried out in India indicate that the bulk of the population suffers from undernourishment and malnourishment through poverty and ignorance. This is reflected in the high figures for the infant mortality and of women

of child-bearing age. The condition also is one of the factors responsible for the low expectation of life in this country. The Government should therefore take all necessary steps to collect accurate mortality and morbidity statistics.

5. The central and provincial public health departments should institute and develop well-equipped and adequately staffed nutrition sections to carry out public health nutrition work in their respective administrative jurisdiction.

Apart from these recommendations certain specific measures were also considered consisting of (*a*) the special care of vulnerable groups such as the expectant and nursing mothers, and infants and children, (*b*) encouragement of the social feeding habit and (*c*) education of (*i*) specialised nutrition workers, (*ii*) those who will in turn educate the public and (*iii*) the public itself.

In the event of the Government deciding to implement these recommendations, the action should logically proceed along the following lines :

(1) Increase in production of food of all kinds.

(2) Planning for the best utilisation of all available food with special provision for the vulnerable population groups.

(3) Periodical health surveys and checks on the effect of food control on the nutrition of the people.

(4) Education of the public to make them nutrition conscious.

FOOD PRODUCTION

Total quantity of food : In India an approximate estimate of food required by 400 million adult males has been attempted. The figures quoted below are from the report of the Twelfth Meeting of the Nutrition Advisory Committee, November 1944.

TABLE I

Estimated annual requirements of foodstuffs for human consumption

	In million Tons
Cereals	57
Pulses	12
Vegetables—	
vegetables	16
(1) Green leafy	
(2) Non-leafy including tuberous	24
Fruits	12
Sugar and *jaggery*	8
Fats (oils and *ghee*)	8
Milk	46
Fish & Meat	9
Eggs	102,000

Assuming that** 30% **of the population is vegetarian and would not partake of these foods.

(b) *Dietary allowances :* It is necessary to have some basis for calculating the total food requirements, and it could only be provided if the daily requirements of the population of various age groups were known. A considerable amount of work on the requirements of energy and the essential nutrients such as proteins, vitamins and minerals, etc., has been done in India during the last decade although much more remains to be done. The Nutrition Advisory Committee in November 1944 formulated a table of dietary allowances applicable to Indians and the main consideration in drawing up these allowances can be best expressed in the words of the Committee Report which says, ' Our purpose is to establish objectives for long-term planning by assessing the quantities of different foods required to balance the diet and indicating the changes in existing production necessary to attain this end.'

The dietary allowances in terms of the foodstuffs given in Table II are taken from the Nutrition Advisory Committee Report of the Twelfth Meeting.

TABLE II

Composition of a balanced diet

(Adequate for the maintenance of good health)

	Ounces	*Nearest gramme*
Cereals	14	398
Pulses	3	85
Vegetables—		
(1) green leafy	4	114
(2) root	3	85
(3) other	3	85
Fruits	3	85
Milk	10	284
Sugar and jaggery	2	57
Vegetable oil, ghee etc.	2	57
Fish and meat	3	85
Eggs	one egg	

The present population of India has been estimated at 400 millions. This should be equivalent to 320,000,000, consumption units as the whole population will consist not only of male adults but also of individuals of different age groups. In making provision for 400,000,000 adult males therefore sufficient food will be left over to provide for the special vulnerable groups such as expectant and nursing mothers and infants and children. From these two sets of data the total food production could be calculated as given in Table I. It must be pointed out, however, that the figures given in Table I are estimates of foodstuffs for human consumption only. The requirements of livestock, seed, wastage etc., have not been considered, for which extra allowance will have to be made.

Similar attempts to set down dietary standards for the people have been made in China, Japan, Philippines and Indonesia. They have helped in estimating the extent of undernourishment and malnourishment prevalent in various strata of population.

That the existing agricultural statistics are not reliable has been mentioned above. Most experts seem to agree, however, that the present food production is grossly insufficient. It will require an all out effort to reach the state of adequacy; even then it may not be possible to achieve it within fifteen to twenty years. The target has now been defined, however, and it is the duty of those concerned with the food policy to see that it is reached within a reasonable period.

UTILISATION OF AVAILABLE FOOD

Even while the campaign for increased food production is gathering momentum, it should be possible to make the best use of the available food by taking measures designed to promote that end.

(a) *Rationing :* The first step to ensure adequate distribution of food in times of shortage is that of rationing. In India rationing was introduced in 1943 and has since then consistently expanded. In March 1943 the population included under the rationing system was 1.9 millions; by the end of June 1946, 130 millions were under the rationing scheme. The system of rationing involves the State procurement of food, for then the responsibility to provide the rationed quantity lies with the State. Storage, transport, price control and effective distribution agencies are other considerations involved in rationing. Lack of accurate knowledge of food production and the administrative difficulties in procuring foodstuffs such as meat, fish, eggs, milk, pulses, fats, etc., have made it necessary to confine the rationing in India to cereals and sugar only. Thus all protective foodstuffs have remained uncontrolled and unrationed. In this, rationing in India has been faulty. The scheme provides a minimum of food mainly for energy needs and leaves the individual to find by himself ways and means to obtain the essential foods. The poor do not succeed in this. The result has been that although acute starvation has been avoided, undernourishment and malnutrition are becoming chronic. The ideal condition would have been the rationing of protective food stuffs and the foods providing mainly the energy requirements. Unfortunately it has not been possible in India partly for reasons given below.

Recently some interesting information on food procurement has been made available. During the last three years 50 to 60 million rupees have been spent to support the food production drive. During the same period 910 millions have been spent in importing food from abroad and an additional 150 million rupees is estimated as the cost of distribution of the imported food to be spent in one year only. The highest agricultural authorities in the Indian government now proclaim that had these vast sums been spent in increasing food production in the country India would never have been in the position of having to beg at the doorstep of other nations for import of food. It is reasonable to state, however, that before the war the Government would never have dreamt of spending even a tenth of the amount for producing more food. To-day India has to pay through the nose for these supplies. It is hoped that this lesson once learnt will never be forgotten.

(b) *Social feeding :* In times of food shortage social feeding goes a long way to conserve the available food. This was first tried on a large scale in Soviet Russia during the first Five Year Plan. It is true that the average individual does not take kindly to the idea of social feeding. He looks on it as a last resort. The objections however, are mainly based on false conceptions. The questions of monotony of diet, infringement of personal liberties, disruption of family life etc., have at one time or other been raised, but a moment's thought will show that they arise from certain preconceived notions and are not based on actual experience. In USSR where the experiment of social feeding has been fostered and carefully watched great strides in improving the diet of the people have been taken by using this very method.

The experiment has demonstrated that (1) improvement in the quality of food made ready for consumption, (2) decrease in wastage of food, (3) lowered cost of preparation, and (4) saving of labour can be achieved by means of social feeding. The preparation of food on a large scale in kitchens attached to factories or on collective farms has made it possible to exercise scientific control for the purposes of retaining the nutritive value of the raw foodstuff in the finished product. Kitchens are kept scrupulously clean and cooking is done under hygienic conditions and proper supervision. Restaurants, attractively decorated and kept scrupulously clean, provide healthy and cheerful surroundings during mealtime to persons who cannot afford these luxuries in their houses. The food is thus eaten and the meal enjoyed in a wholesome environment. A few figures (quoted from *Men, Medicine and Food in USSR* by Le Gros Clark and Noel Brinton) will well illustrate the benefits above referred to. When meals are prepared by families individually it has been estimated that for every 1,000 persons 1,370 work-hours a day are spent on preparation of meals. In communal feeding rooms only 120 work-hours were required for the same number of persons. In a family with an average of 7 square metres floor space, one square metre per person is used for kitchen purposes, whereas in a communal feeding establishment less than 0.3 sq. metre per person was required for kitchen space. In addition to the saving of time and space considerable labour saving can also be effected. In every house women spend valuable time on cooking. In social feeding programmes most of them would be available for more productive jobs. The wastage of food which accompanies preparation and the plate wastage can also be minimised and whatever wastage occurs can be more easily collected for feeding the livestock.

Thus there is hardly any doubt that resort to social feeding on a large scale sponsored and supervised by the state will provide more nutritious food at less cost and under hygienic conditions. The schemes are workable in large cities, state and industrial establishments, schools and colleges, etc. With proper control and judicious choice of propaganda methods the scheme can be made a success.

FEEDING OF VULNERABLE GROUPS

One of the essential requirements for raising a generation of healthy individuals is the adequate care of expectant and nursing women and infants and children. A nutritious diet during these stages of life will have a great influence on the health of the population as a whole. In India the infant, maternal and general mortality rates are high. The experience of those connected with welfare work suggests that deaths among infants and women of child-bearing age are due to chronic malnutrition. In 1941 the infant mortality rate was 158 per thousand live births, and it amounted to 24% of all deaths, the corresponding figures for England being 59 per mille and 7%. Further it is to be noted that half the mortality recorded in India in a given year occurs in children under 10 years. The death rate among women is greater than for men for the years 15 to 45 and this preponderance is due to mortality from child-bearing. The anaemias of pregnancy associated with faulty nutrition which by themselves are responsible for many deaths, materially contribute to the decreased resistance to puerperal sepsis which is the main recorded cause of maternal mortality.

Much of this unsatisfactory state of affairs can be remedied by ensuring proper nutrition to these vulnerable groups. In times of food shortage these groups should be given preferential treatment in any food distribution and rationing schemes.

It has been observed in many countries of the Far East and in India too—that the weights and the development of the infant during the first six months of life are comparable to those in European infants. But when the infants in Asian countries are weaned and start receiving faulty diets their growth and health shows deterioration which continues till adolescence. The effects of malnutrition during the stage of development leave their mark for the rest of life. The nutrition of children of pre-school age is thus an intricate problem difficult of solution. The adequate nutrition of poor children of school-going age can be ensured, however, by giving them at midday (1) a balanced meal or (2) milk with vitamin supplement, so that at least a major portion of the child's mineral and vitamin requirements would be regularly provided. With the likelihood of compulsory primary education schemes being launched in most provinces a school feeding programme for age groups of 6 to 11 years should represent no insuperable difficulty in India.

PUBLIC HEALTH AND NUTRITION

Deficiency Diseases

(a) *Vitamin A deficiency:* The mildest clinical manifestation is night-blindness. When the deficiency becomes chronic it may lead to blindness. Certain skin manifestations such as phrynoderma have been ascribed to this deficiency although the evidence is not quite conclusive. Widespread occurrence of diseases to vitamin A deficiency has been reported from India, China, Ceylon, Malaya, Indonesia and Philippines.

(b) *Thiamin deficiency :* Beriberi is endemic in several regions under survey. Mention of the extensiveness of its occurrence has been made earlier. In South India, Siam and Philippines its incidence is alarmingly great. Considering that this disease is entirely preventible by the very simple procedure of preventing extreme milling and polishing of rice it is a wonder that the step has not been widely taken by the authorities concerned. During the war complete milling and polishing of rice has been statutorily prevented in many parts of India. What effect it has had on the beriberi incidence is not yet known.

(c) *Deficiency of vitamins of B_2 complex :* Mild aribo-flavinosis has also been reported widely. Pellagra in its classical form is not commonly met with. The occurrence of certain non-specific chronic diarrhoeas has been traced to nicotinic acid deficiency, and recently a condition described as burning feet has been reported to yield to pantothenic acid therapy. Some types of macrocytic anaemias are associated with folic acid deficiency. Sprue also has been associated with a general deficiency of vitamins of the B_2 complex.

(d) *Vitamin C deficiency :* Fortunately frank scurvy is relatively rare. It must not be thought, however, that chronic state of subnutrition with regard to this vitamin does not exist.

(e) *Vitamin D deficiency :* At one time it was believed that rickets which is associated with the deficiency of vitamin D was not found in the tropical countries. Recently it has been shown that it is not so. Rickets has been reported to be fairly common in China and India. Osteomalacia in both these countries is also not infrequently met with.

Nutritional anaemia, nutritional oedema, and simple goitre are diseases having their origin in deficient diets. In addition to these frank manifestations of deficiency the chronic malnutrition in a general way has left its mark on the health and physique of the people.

Other Diseases Associated with Malnutrition

Faulty nutrition has now come to be accepted as a major contributory factor in determining individual resistance to disease. There are a number of diseases which are directly or indirectly associated with malnutrition. Respiratory diseases—mainly tuberculosis, leprosy, dysentery and other intestinal disorders, peptic ulcer, dental caries, infantile biliary cirrhosis and certain forms of chronic hepatic cirrhosis in adults are only a few selected for mention. Although the role of diet in the etiology of many of these diseases is not quite clear circumstantial evidence is such as to associate them with faulty nutrition as one of the predisposing factors.

Public Health Administration and Nutrition

The modern trends in public health practice suggest that the scope of the public health administration will have to be considerably widened to include public health nutrition work. The activity of these departments was mainly directed till recently towards (*a*) the collection of morbidity and mortality statistics, (*b*) supervision of sanitation and hygiene, (*c*) supply of prophylactic biological products for prevention of spread of infectious disease, etc. Now they may have to look after the health of the population from a new angle. The Public Health Administration will have to carry out nutrition surveys in rural and urban areas, schools and industrial institutions and suggest means for combating malnutrition. Even in the best fed countries such things are done on a fairly large scale. It is hardly necessary therefore to stress its need for the Asian countries, although it is only fair to mention that a start in this direction has been made.

The supervision and control over the sale of food, prevention of adulteration, control of communal kitchens and restaurants and education of suitable personnel will be other duties in connection with food and nutrition. These functions can only be adequately discharged by properly staffed and equipped nutrition sections in the Public Health Administration.

EDUCATION AND RESEARCH

Education : It must have become clear on the strength of what has been said up to now that ignorance of fundamental principles of nutrition not only among the public but probably also among the people who are in charge of public health has been partly responsible for the present state of affairs. One does not need to go far to seek the underlying reason. The science of nutrition is comparatively a new acquisition of mankind. Its phenomenal progress during the last thirty years has been quite bewildering, and knowledge has been accumulating so fast of late that even the scientists often find it difficult to keep pace with it. The nutritional science as a part of physiology and hence also of the general medical curriculum was almost non-existent about twenty years ago. Naturally the public health personnel which graduated in those years and which probably is in charge of the health of people in different countries has had no proper opportunity to grasp the significance of nutrition in the etiology of disease and maintenance of—what we choose to call for want of a better term—positive health. Of course, there are exceptions, especially the workers who had the urge for gaining knowledge and those others who, although being administrators, had the capacity and keenness to apply the knowledge gained by others to practical problems. But their number is exceedingly small.

The first step to improve the nutrition of the people is therefore to so educate the public health workers that the importance of correct nutrition as one of the prime factors in the prevention of disease is fully impressed on their minds, for theirs will be the primary responsibility to look after a nation's health by putting in practice what they learn. The modern trend in the teaching of medicine lays great stress on its preventive aspect and it is good to know that nutrition is one aspect which is no longer ignored.

The health personnel will also consist of non-medical men including health visitors and social welfare workers. These latter will have to perform important functions in the future health programme of the country. It should not be difficult to impart to them the basic knowledge of nutrition which can be applied in their work.

The public has recently become highly nutrition conscious, the main reason being, of course, the protracted food shortage. The layman is therefore in a mood for receiving correct information. But this will have to be given in such a way as not to completely upset his own ideas of food. After all, it cannot be denied that prejudices and traditions die hard. One who has been eating rice throughout his life will not take kindly to the suggestion of substituting part or whole of it with wheat or millet and *vice versa.* A thorough knowledge of the dietary habits, their merits and demerits, the nutritive value of local foodstuffs and an understanding of the underlying psychology and the economic limitations of the class of the people whose diet one wants to improve are therefore a few requirements which a nutrition teacher or reformer must possess. A great help in this direction would be the institution of the village, town, district and provincial nutrition committees consisting of scientific workers, public health staff and respectable and intelligent members of the public itself. The incorporation of simple lessons on nutrition in the general science curriculum of the schools is another step which in the long run will certainly yield good results.

Research : Active research on the fundamental and applied aspects of nutrition is an integral part of any programme devised to attack the problem of nutrition. As the Indian Nutrition Advisory Committee says, ' All progress is based on research and there is abundant evidence that nutrition research can make valuable contributions to human welfare '. In the scientifically advanced countries large sums are annually spent on financing programmes of nutrition research. On the continent of Asia, active nutrition research centres existed before the War in Japan, China, Indonesia, Ceylon and India. Appreciable work was also being done in the Philippines. As a result of the War, however, research work in Japan, China, Indonesia and Philippines must have come practically to a standstill. India was far more fortunate in this connection. The researches on nutrition gathered strength during the War and have been intensified due to continued shortage of food with great benefit to the country as a whole. It is hoped that in the areas devastated by the War, new organisations, interested in nutrition research, will be built up and fostered by National Governments as an important nation building activity deserves to be.

GENERAL ECONOMIC CONSIDERATIONS

It will be unfair to bring this memorandum to a close without making a mention of what may turn out to be the most crucial point. The economic condition of the masses will ultimately determine the fate of the plans designed to improve their nutrition. A discussion of the possible ways and means to increase their purchasing power is beyond the scope of the present note. Besides, a critical appreciation of the issues involved can only be made by a competent economist. It is a pity to note therefore that on a certain fundamental point such as the average annual income of a poor Indian there has been no unanimity among the Indian economists. Figures varying from Rs. 12/- to Rs. 65/- have been quoted by various authors as the average *per capita* annual income. These obviously have been arrived at by surveys in different places by different investigators using probably different methods of evaluation. But to a layman it all appears confusing.

In 1941 the average cost of a well-balanced diet was computed to be between Rs. 4/- to 6/- per person per month. A poor man earning Rs. 12/- a year would have to spend Rs. 48/- at least to feed himself, obviously an impossible position. Even with the best intention in the world such a person can never hope to obtain a diet which, far from keeping him in positive health, will hardly suffice to keep body and soul together. Based on the estimates of the average *per capita* income and the availability of food, the economists conclude that 30% or more of Indians do not get sufficient food to satisfy their hunger which may possibly be true. The question is whether such a thing can be allowed to exist in any country which lays a claim to be called civilised. If the answer is in the negative, is it not time that something should be done, and sooner the better?

The problem of the higher income groups need not bother us. Where the income exceeds the amount required to purchase basic dietary needs there is some scope for adjustment; sometimes these adjustments to obtain a better quality of the diet are instinctively done. In other cases they can be brought about by educative methods. But the problem of nutrition among the lowest income groups is the most difficult of solution. It is time that all activities of the state and all its talent are utilised to solve this problem, for on its satisfactory solution the existence of a nation is dependent. It would not be an exaggeration to say that the civilisation of a community or state will be judged by the yardstick of its successful efforts in warding off the fear of hunger among the masses.